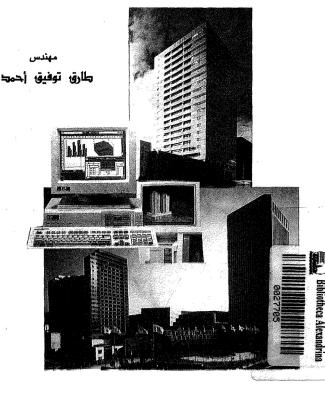
تصميهم المنشآت الخرسانية

بإستخدام

CADS ANALYSE



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مهندس طارق توفيق إحمد

دار الكتب العلمية للــنشروالتوزيـــع ۱۸ شارع السبع ـ إمبابة ت : ۲٤٤٠٩٧٩



وقل رب زدنی علماً

الإصحاء

إلى كل عقل يبتكر ويفكر

.. وكل يد تبني وتعمر

أهدي هذا الكتاب

شكر

أتقدم بخالص الشكر لكل أستاذتي الذين علموني - إعترافا لهم بالجميل - وأشكر كل من عاونني في شركة (المهندسون المصريون للحاسبات).

وعلى ما أبدوه من تعاون مثمر معي وأيضا السادة العاملين بدار الكتب العلمية للنشر والتوزيع على مابذلوه من جهد ليظهر هذا الكتاب إلى النور بهذه الصورة المشرفة .

المؤلف

مقدمة

الحمد الله الذي هدانا لهذا وماكنا لنهتدي لولا أن هدانا الله . وبعد يعـتـبـر هذا الكتـاب الأول من نوعـه الذي يتناول برنامج التـحليل والتـصـمـيم الإنشائي (CADS ANALYSE)

أقدمه لجميع المشتغلين في حقل الهندسة المدنية وخاصة منهم العاملين في مجال التصميم الإنشائي وقد راعيت أن أقدم هذا الكتاب في صورة مبسطة ومتتابعة حيث أبداً مع القاريء العزيز من الخطوة الأولى للتعامل مع الحاسبات الشخصية .

(PERSONAL COMPUTERS)

وهي مقدمة مختصرة عن نظام التشغيل (DOS) ثم مقارنة البرامج الإنشائية المختلفة والمستخدمة في التصميم وقد توخيت قدر جهدي الدقة في توضيح الفروق بينها. ويإستعراض أجزاء هذا الكتاب سنجد أنه ينقسم إلى جزئين أساسيين .

الجـزء الأول : _ ويحتري على الأسس والقواعد النظرية اللازمة لتشغيل البرنامج. الجزء الثاني : _ على العديد من الأمثاة المحلولة والتي يصادفها المهندس في حياته العملية مما يوفر الوقت والجهد ويعطي فرصة لإظهار أفضل الحلول من الناحية الإقتصادية .

وأرجب بأي إستفسارات أو ملاحظات من السادة الزملاء .

وأرجو من الله عز وجل أن يتقبل مابذاته من جهد وهذه المساهمة للتواضعة في مكتبتنا العربية لعلوم الحاسب .

د رينا لا تؤاخذنا أن نسينا أو أخطانا رينا ولا تحمل علينا أصراً كما حملته
 على الذين من قبلنا ولا تحملنا مالاطاقة لنا به وأعفِ عنا وأغفر لنا وإرحمنا أنت
 مولانا فإنصرنا على القوم الكافرين » .

القاهرة سبتمبر ١٩٩٢

مهندس / طارق توفيق أحمد



الباب الأول

الحاسبات والتصميم الهندسي

الغصل الأول المقدمة ونظام التشغيل

> الفصل الثاني برامج التصميم

المقدمة ونظام التشغيل

لدراسة الحاسب الشخصى يلزم معرفة شقين أساسين وهما مكوناته المنلية (HARDWARE) والبرمجيات (HARDWARE _ المكونات الصلبة (Input Unit) ١ ـ وحدة الإنخال (Central Processing Unit) ٢ ـ وحدة المعالجة المركزية (Output Unit) ٣ ـ وحدة الإخراج ا _ وحدة الإدخال Input Unit يتم إبخال البيانات عن طريقها مثل لوح المفاتيح Keyboard ومشغل الإسطوانه . Mouse والفارة Disk Drive ٢ - وحدة المعالجة المركزية : ويوجد بها الأجزاء التالية . (Memory) (أ) وحدة الذاكرة (Arithmatic and Logic Unit) (ب) محدة الحساب والمنطق (Control Unit) (ج) وحدة التحكم (أ) وحدة الذاكرة: وتنقسم إلى: ـ ذاكرة القراءة (Read Only Momory (ROM) ويوجد بها برامج قابلة للتنفيذ بدون أى تعديل من المستخدم ولا يفقد مابها عند إنقطاع التيار الكهريي . ـ ذاكرة الوصول العشوائي Random Access Memory (RAM) وتسمى أيضابذاكرة القراءة والكتابة ويتم بها التعامل مع البيانات والبرامج

والنتائج ويفقد مابها عند فصل أو إنقطاع التيار الكهربي .

(ب) محدة الحساب والمنطق

ويتم بها إجراء جميع العمليات الحسابية كالجمع والطرح والضرب والقسمة وكذلك العمليات المنطقية مثل أكبر من أو أصغر من أو يساوي أو لايساوي)

(ج) وحدة التحكم:

تتحكم في إنتقال المعلق مات بين وحدات وحدة المعالجة المركزية - مثلا بين الذاكرة ووحدة الحساب والمنطق - وكذلك إخراج النتائج .

Y - وهدة الإخراج Output Unit

ويتم إخراج النتائج عن طريقها مثل الشاشة Monitor والطابعة Printer والراسمة Plotter



-البرمجيات:

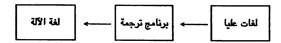
وتنقسم إلى الأجزاء التالية :

۱ _ برامج نظم تشغیل

وهذه البرامج يتم تصميمها بمعرفة الشركة المنتجة الحاسبات الشخصية وأكثرها إنتشارا (MS - DOS).

۲ ـ لفات برمجة

مثل لغات البيسك والفورتران والكوبول والباسكال وتسمي باللغات العليا (High Level Language) ولا يفهمها الحاسب مباشرة وتحتاج إلى برنامج للترجمة إلى لغة الآلة .



٢ ـ برامج التطبيقات

وتتناول كافة مجالات الهندسة والمحاسبة والإداة ومعالجة الكلمات مثل Autocad, Cads, Staad, Lotus 123, Dbase, Word Star

أوامر نظام التشغيل الهامة

إستخداماته	الصيغة	الأمر
لعرض الملفات الموجودة على إسطوانة الشفل A مثل السابق واكن على شاشات منتابعـــة. عرض الملفات على شاشة واحدة بالعرض.	A >DIR/ P	DIR داخلي
- تنظيــف الشاشـــة .	A>CLS	CLS داخلي
ـ لمعرفة الوقت المالي مع إمكانية تغييره .	A >TIME	TIME داخلي
ـ لمرفة التاريخ الحالي مع إمكانية تغييره .	A >DATE	DATE داخلي
ـ لنسخ ملف (أو مجموعة من الملقات) من إسطوانة المشغل A إلى إسطوانة المشغل B	B >Copy A:File Name	داخلي
لإستعراض محتويات ملف نصبي (Text file)	A >TYPE File Name	TYPE داخلي
لإلغاء ملف (أو مجموعة من الملقات)	A >DEL File Name	DEL داخلي
لتهيئة وتشكيل الإسطوانة جديدة مثل السابق مع نقل ملفات نظام التشغيل عليها	A >FORMAT A: A >FORMAT A:/S	FORMAT خارجي

أوامر نظام التشغيل الهامة (تابع)

إستخداماته	الصيغة	الأمر
لنسخ إسطوانة كاملة بإستخدام المشغل A	A > DISKCOPY A: A:	DISKCPÖY خارجي
المقارنة بين الإسطوانة الأصلية والمنسوخة .	A > DISKCOMP A: A:	DISKCOMP خارجي
فحص الإسطوانة في المشغل A وإعداد تقرير عنها وعن الذاكرة .	A >CHKDSK	CHKDSK خارجي
لإنشاء فهرس فرعي على الفهرس المالي لإسطوانة للشغل A	A >MD Directory Name	MAKE DIRECTORY داخلي
الإنتقال من الفهرس الحالي إلى فهرس فرعي آخر .	A >CD Directory Name	CHANGE DIERCTORY داخلي
لإلقاء فهرس قرعي	A >RD Directory Name	REMOVE DIRECTORY داخلي

برامج التصميم

أصبحت تلك البرامج (Computer Aided Design) السمة المميزة للحاسبات الشخصية طراز(IBM) والأجهزة المتوافقة معه .

ومن أشهرها برنامج الرسم الهندسي Autocad المستخدم الرسم في المستوي والفراغ وإعداد المناظير وكتابة الأبعاد والتعريفات على الرسم وطباعة الرسومات على الطابعات والراسمات من أحجام A4 حتى A0 وإمكانية تعديل المساقط الأفقية والرأسية والقطاعات وطباعتها مما يوفر الوقت والجهود

ويستخدم البرنامج السابق في الرسومات المعمارية والإنشائية والميكانيكية والكهربائية ويعتبر أقوي برامج الرسم وأكثرها إنتشارا وشيوعا في العالم

وظهر حديثا برنامج مكمل عديد الإمكانيات وهو 3D Studio للعرض المجسم في الفراغ مع إمكانية توايد الرسومات المتحركة المتخصصة بدرجة عالية من الدقة والوضوح ويحتوي على محرر رسوم في الثلاثة أبعاد ويمكن للمستخدم توايد المجسمات بسرعة ودقة وإضافة المواد المستخدمة فيها بنفس الشكل واللون كالخشب والزجاج والأرضيات وخلافه بحيث تظهر على الشاشة كما في الطبيعة ويمكن إعداد الرسومات أولا بإستخدام Autocad وإدخالها على 3D Studio لإضافة اللمسات الأخيرة التصميم كالمواد الخام ولعرض المنشأت بطريقة مبهرة بدورانها حول محاور عديدة مع إستخدام الإضاحة والمظلل والكاميرات من مواضع مختلفة

وفى مجال التحليل والتصميم الإنشائي ظهرت برامج عديدة منها

CADS ANALYSE

STAAD III SAP 80

وتعتمد كلها على خطوات أساسية متتابعة وهي إدخال أبعاد وشكل المنشأ وقرض قطاعات لأعضائه وكذلك حالة الركائز وأخيرا الإحمال وحالات التحميل ثم الحل وظهور النتائج وهي العزوم والقوي المحورية وقوي القص والإزاحات مع إمكانية تصميم قطاعات المنشأ.

ويوضح الجدول التالي مقارنة بين تلك البرامج .

SAP80	STAAD	CADS	وجه المقارنة
XT or AT + HARD DISK+ COPROCESSOR	XT or AT	XT or AT	الأجهزة
علـــى الأقـــل 12. كيلـــوبايــت	طـــى الأقـــل ٦٤٠ كيلـــوبايــت	طــــــــــــــــــــــــــــــــــــ	الذاكرة
على الأقل ه إسطوانـات سعة ٢٦٠ كيلربايت	عد ٤ إسطوانات سعة ٢٦٠ كيلوبايت	عدد ۲ إسطوانات سعة ۲۲۰ كيلوبايت	الإسطوانات
والإحمال بإستخدام برامج	كتابة وترمديف المنشئ والإحمال بإستخدام برامج معالجة التصوص	•	إسلوب الحل
من خارج البرنامج ويتعديل الملف النصبي المكتوب	من خارج البرنامج ويتعديل اللف النصمي المكتوب		التعديل
في المستوي والفراغ Finite Elements Dynamics	فسي الستوي والفراخ Finite Elements	في المستري فقط .	تصميم المنشأت
يظهر تقرير للصلوبه نتائج المنشأ	يظهـر تقريــر الحـل وبـــه نتائــج المنشأ	يتم بدقة عالية مع رسم المنشأ ونتائج الحل	إظهار النتائج والرسومات
STAAD أكثر صعوبة من	اکثر مىعوبة من CADS	أسهال البسرامج الإنشائية	السهواـــة
لمراجسعسة الملف النصي	تحتاج إلى ذبرة الستفدم لمراجعة اللسف النمسي وإكتشاف الخطسة	البرنامج عن حدوثها كما	الأخطاء

الباب الثانى تشغيل البرنامج

الفصل الأول متطلبات التشفيل

الفصل الثانى اسطوانات البرنامج

الغصل الثالث زُجمُيز البرنا مج للعمل

الغصل الأول متطلبات التشغيل

١ .. حاسب شخصي من طراز (IBM XT OR AT) أو أحد الأجهزة المتوافقة معه .

٢ ـ ذاكـرة المـمل ٢٥٦ ك . بايـت (RAM) كـحد ادنى ومشغل اسـطوانات

مرنة ٢٥, ٥ بومنة سعة ٣٦٠ ك . بايت وأخر ٥, ٣ بومنة سعة ٧٢٠ ك .

بايت أن إسطوانة صلبه (HARD DISK) .

٣_نظام التشغيل الاصدار ٢٠٠٠ بما يليه

(PC - Dos or MS-Dos, version 2.00 or Higher)

. (Monochrom or color monitor) عرض أحادية اللون أوملونة عرض أحادية اللون أوملونة

ه _ أحد مهيئات الالوان والرسوم البيانية التالية :

Color Graphic Adaptor

C. G. A.

Enhanced Graphics Adaptor

E. G. A

Video Graphic Adaptor V. G. A

Hercules Graphic Card

٦ - مخرج طابعة على التوازي Parallel Port

ل اختيارية) من طراز (Epson FX or IBM Graphics Printer) من طراز (

الفصل الثانى اسطوانات البرنامج

يتكون البرنامج من ثلاثة اسطوانات سعة ٢٦٠ ك . بايت وهي :

- * Analyse disk (1)
- * Analyse disk (2)
- * Analyse disk (3) (Examples)

وتحتوى الأسطوانة الأولى على ثلاثة أنواع من الملفات وهي :

ا - ملغات قابلة للتنفيذ (Executable Files)

وكل ملف يستخدم البيانات المدخلة ويتعامل معها ويعد النتائج كمدخلات للملف الذي يليه وهكذا حتى الوصول إلى نهاية البرنامج وهي :

APC	EXE	5632	1-01-80	4:12a
CONFIG	EXE	29885	8-16-85	4:32p
BASRUN	EXE	31744	5-07-82	12:00p
APO	EXE	39806	9-18-85	1:48p
AP1	EXE	515843	9-16-85	12:20a
AP3	EXE	3664	9-17-85	11:40a
AP4	EXE	25965	8-16-85	11:32a
AP8	EXE	21885	8-15-85	5:38p
AP9	EXE	29536	8-18-85	4:51p
AP11	EXE	26736	8-16-85	11:42a
AP13	EXE	64080	9-13-85	1:11p

ويلزم لتشيغل البرنامج تصميل الملف BASRUN.EXE في الذاكرة ويستخدم الملف CONFIG. EXE لتهيئة البرنامج تبعا لنوع الجهاز المستخدم وإمكانياته.

- Text Files) ملغات نصية

وتحتوى على الكتابة التي تظهر على الشاشة أثناء تشغيل البرنامج وهي :

	AH	TXT	69300	8-19-58	11:54a
	CADSREP	TXT	220	7-28-85	6:07p
	CURRENT	TXT	128	1-01-80	1:48a
	AS	TXT	1536	1-01-80	12:20a
	AT 10	TXT	1769	1-01-80	12:06a
	AT 11	TXT	1890	1-01-80	12:07a
	AT 12	TXT	2404	1-01-80	12:07a
	AT 14	TXT	1344	1-01-80	12:08a
	AT 15	TXT	1161	1-01-80	12:08a
	AT 16	TXT	3009	1-01-80	12:09a
	AT 17	TXT	2484	1-01-80	12:09a
	AT 18	TXT	1340	1-01-80	12:10a
	AT 30	TXT	6932	8-3-85	12:54a
	AT 40	TXT	558	8-3-85	12:55p
	AT 80	TXT	640	8-3-85	12:57p
	AT 90	TXT	4032	8-3-85	12:57p
	AT 13	TXT	5221	1-01-80	12:28a
	ATBO	TXT	980	8-30-85	12:58p
	ATDO	TXT	5438	8-30-85	12:03p
	INSTALL	TXT	240	7-31-85	5:19p
	OOTA	TXT	7303	1-01-80	6:33a
	CADSEND	TXT	362	7-25-85	5:43p
	CADSLOAD	TXT	40	7-25-85	5:54p
	CADSZERO	TXT	128	1-01-80	1:50a
	ANAMES	TXT	128	1-01-80	12:09a
L					

ويستخدم الأمر TYPE لعرض محتويات الملفات على الشاشة فمثلا:

A >TYPE AH.TXT

تظهر البيانات الأتية على الشاشة وهي للف الساعدة من داخل البرنامج AH.TXT

I	Help Instructions Indes INTRODUCTION - How to use the Help
Inst	ruction Page 1 - How to enter date from the keyboard
	Page 2 - How to use the SPREADSHEET system
	Page 3 -5 -How to use the SCIENTIFIC CALCULATOR
	Page 6-7 -How the ANALYSE program works
Pag	e 8-9 - Program assumptions and limitations Page 10
DA	TA ENTRY - Entering Joint Coordinates Pages 11-12
	Entering Member Location and Fixity Page 13
	ering Member Properties Pages 14-15 - Entering
Sup	Ports Page 16 - Entering Load Cases .
	Page 20 - Entering Load Combinations
Pag	e 22-23 - Interpretation of results Page 24
	GRAPHICS - Frame Geometry, Deflections, Moments & Forc-
es	Pages 27- 30 Disk UTILTTIES - Backing uip / Formatting new
disl	ks Page 31 - Copying / Deleting / Renaming Jobs
	Page 32 INTRODUCT 10N - How to use the help Instruc-
tion	as. page 1 Whenever you press the help key (F1), the current
scre	en display is sayed and page of the Help Instructions, usually relev-
ena	t to the section of the programthat you are presently running, will
арр	ear. At the bottom of the screen are bcommands that all ow you to
acc	ess other Help Pages as easily as turning thepages of book. These
con	nmands are F1- Help, Takes you directly to this Help pagewher
inst	ructions for using these Help pages are found. F3 - go to:, al-
	s you to jump airectly to any other help page by typing the num-

ber of the page then pressing the ENTER key, F4 - Back, allows you to turn back and examine the previous help page. F5- Indes, allows you to jump directly to the help Instructions Indes Page. F6 - Forward, allows you to turn forward to the next help page. ESC - Escape, takes you out of the help Instructions, restores the original screen display and allows you to continus the program from the point where you first asked for help. INTRODUCTION - Entering data from the kypboard.

Page 2 There are three ways of entering data into the program 1 Highlig hted character on screen (Menus, etc.). Only one key press is required. This is the key on the keyboard corresponding to the highlighted character of the opion required on the sreccn. 2 Flashing Cursor on screen. More than one key press is expected, so all entries must be terminated by presssing the ENTER key. A default value is usually prompted and may be accepted by just pressing the ENTER key. Pressing any other key will replace the prompted value with the new date just typed. The BACKSPACE key may be used to edit typing mistakes before pressing the ENTER key . 3 List entries. When multiple entries are expected (eg TRANSFER data to a list of other items) the program allows you to enter a group of numbers in one go. CONSECUTIVE NUMBERS eg: 1,2,3,4,5, & 6 are entered by typing 1-6 and ENTER. NON-CONSECUTIVE NUMBERS eg: 1, 3 & 7 are entered by typing 1,3,7 and ENTER. You may not mix the two formats in the same entry, howvere, the program always prompts ANY MORE ? Y/N so the two formats may be used alternately. INTRO DUCTION - How to use the spreadsheet page 3 ember 10 cation and fixity

em J1. Jnt X1 Coord Y1 Coord Y1 Coord J2. Jnt x2 Coord Y2 Coord Length Slope O.no . can (m) (m) no. can (m) (m) (deg) 1 2 F 0.000 2.600 3 F 1.750 3.240 20.088 F 1.750 3.240 F 3.500 3.880 1.863 20.088 3 0 < Input mode.

۳ - ملغات حزم الأوامر Batch Files وتحتوى على مجموع أوامر لنظام التشغيل وتحميل ملفات البرامج القابلة للتنفيذ Executable وهى:

INSTALL	BAT	770	8-02-85	3: 46P
CADSINIT	BAT	256	2-14-89	7:42P
CADSFORM	BAT	431	7-31-85	1:27P
SETUP	BAT	2511	8-05-85	5:46P
CADS	BAT	37	7-25-85	6:04P
AUTOEXEC	BAT	207	7-28-85	1:01P
CADSCOPY	BAT	156	7-31-85	1:00P
CADSEND	BAT	31	2-14-89	8:56P
CONVERT	BAT	1440	7-25-85	6:05P
ANALYSE	BAT	50	2-14-89	8:57P
CADSHND	BAT	38	8-02-85	11:41a
GO	BAT	9	3-04-89	9:02P
CADSUTIL	BAT	21	2-14-89	8:56P
CADSRUN	BAT	50	7-31-85	12:26
CADSUTIL	BAT	31	2-14-89	8:56p

ونستخدم الأمر TYPE لعرض محتويات الملفات علي الشاشة فمثلا

A> TYPE	ANALYSE.BAT	

تظهر الاوامر الآتية لتشغيل البرنامج:

echo off cls type cadsload.txt cadsinit a ng تحتوى الاسطوانة الثانية علي ملفات البرنامج اللازمة لادخال البيانات وخطوات الحل وطباعة النتائج والرسومات وخلافة ولا يمكن تشغيل البرنامج بدون هذه الاسطوانة ويلزم وجودها في مشغل الاسطوانات اثناء استخدام البرنامج من البداية إلى النهاية .

تحتوى الاسطوانة الثالثة على أمثلة محلوله باستخدام للبرنامج وهي :

- 1- Cadsex 1.
- 2- Cadsex 2.
- 3- Cadsex 3.
- 4- Cadsex 4.
- 5- Cadsex 5.
- 6- Cadsex 6.

الفصل الثالث يُجِمِّيز البرنامج للعمل

:	(Hard disk	طوانة الطبة	حالة الأد	لافي
---	------------	-------------	-----------	------

۱ـ نجمل الماسب في وضع التشفيل (Power on) .

٧- ننتظر حتى يتم التحميل وبانخال التاريخ والوقت سيظهر المث

C:\>

ئساء الفهارس الفرعية MD وليكن اسم الفهرس الفرعى CADS وتكتب	لـ نستخدم أمر إنا
	الأمر
C:> MD CADS	J

ثم نضغط Enter لإصفال .

4. ننتقل من الفهرس الرئيسي الجذري Root directory إلى الفهرس الفرعي Cads وإذاك نكتب الأمر

C:\>	· CD C	ADS				
			 	 	 	-

ثم نضغط Enter للإدخال فيظهر لنا المدد بالصورة الآتيه

C:\CADS>

ه- نستخدم الامر COPY لنسخ إسطوانات البرنامج التي تحتري على الملفات الآتية

CADSUTIL BAT	CURRENT. TXT	AH TXT	CADSRUN. BAT	CADSREP. TXT
AP3. EXE	AP4. EXE	AS. TXT	APO. EXE	AP 1. EXE
AP 13. FXE	AT10. TXT	APS. EXE	AP9. EXE	AP 11. EXE
AT 15. TXT	AT16. TXT	AT11. TXT	AT 12. TXT	AT 14. TXT
AT 40. TXT	AT 80.TXT	AT 17. TXT	AT 18. TXT	AT 30. TXT
ATDO. TXT	DISK . ID	AT 90. TXT	AT 13. TXT	CONFIG. SYS
ATOO. TXT	CADSINIT. BAT	INSTALL BAT	INSTALL TXT	CADSEND.TXT
CADSEND. BAT	CADS. BAT	CADSPORM. BAT	CADSCOPY, BAT	CADSLOAS, TXT
ANALYSE. BAT	CADSZERO. TXT	CONFIG. EXE	BASRUN EXE	CONVERT. BAT
KEYBUK. COM	CADSHND. BAT	DISLCOPT. COM	FORMAT.COM	MODE, COM
ANAMES. TXT	GO. BAT	CADSEND BAK	ANALYSE BAK	CADSUTIL . BAK
	(A)			

ولذلك نكتب الأمر

C:\CADS > COPY A: *.*

ثم نضغط Enter للإيخال .

بمعناةإنسخ كل الملفات من الأسطوانة الموجودة في المشغل (A)

٦ - نستخدم أمر إنشاء الفهارس الفرعية مرة أخرى وسيكون اسم الفهرس الفرعى A
 وهو لحفظ المسائل التي سيتم حلها بإستخدام البرنامج ومكانة داخل الفهرس
 الفرعى CADS ولذلك نكتب الامر

C:\CADS > MD A

ثم نضغط Enter للإنخال .

وللإنتقال للفهرس الفرعي A نستخدم الأمر cd بالصورة الآتية

C:\CADS >CD A

C:\CADS\A>

وسنجد الفهرس A خالى من أى ملفّات ومستعد لتخزين المسائل المحلولة باستخدام البرنامج.

٧. العودة الفهرس الجذري .Root dir نستخدم الأمر

C:\CADS\A >CD\

فيظهرلنا المث

C:\>

تماما هنال قبل نسخ ملفات البرنامج .

ب ـ فی حالة الاسطوانتین المرنتین B, A الآولی سعة ۳۰۰ ک ب و الثانیة سعة ۷۲۰ ک ب :

تكرر نفس الخطوات السابقة مع تغير المحث <*:C إلى <*:B دائما وستكون الأوامر كالأتي :

B:\>MD CADS

B:\CD CADS

B:\CADS>

B:\CADS>COPY A: * · *

B:\CADS>MD A

B:\CADS > CD A

B:\CADS\A>

B:CADS\A>CD\

B:\>

مع مراعاة أن يكون مشغل الاسطوانات ٥,٦ سعة ٧٢٠ ك بايت هو المحث

جــفى حالة الاسطوانة المرنة سعة ٣٦٠ كايت والذاكرة العشوائية ٩٤٠ كا بايت (RAM) :

يمكن للمستخدم تشغيل البرنامج واظهار جميع النتائج باتباع الخطوات الآتية بعقة :

\ إنشاء الملف Config.Sys باستخدام الأمر

A>COPY CON CONFIG.SYS

ونضغط Enter للإدخال فيظهر لنا المحث على هيئة ...

نكتب أمرإنشاء قرص تخيلي في الذاكرة العشوائية (Virtual disk) وهو DEVICE = VDISK. SYS 384 512 256 C:1

ثم نسجل الملف Config.Sys بالضغط على F6 أو Z ^ مع مراعاة أن يكون التسجيل على اسطوانة نظام التشغيل التي يتم بها تحميل الجهاز وايضا رج راء الملف Vdisk.Sys عليها وهو أحد ملفات نظام التشغيل (DOS) والتأكد من ذلك ندول الحاسب في وضع عدم التشغيل (Power on) .

٣- نستخدم قرض التشفيل المعدل وعليه Config.Sys الجديدة وننتظهر حتى بدّم التحيل وبالنظام التاريخ والوقت سيظهر المحث

A:\>

نغير المسار إلى القرص التخيلي (Virtual disk) باستخدام الأمر

A:\>C:

ثم نضغط Enter للإدخال فيظهر لنا المث

C:\>

ويمكن التعامل معه كانه اسطوانه صلبه صفيرة الحجم (سعة ٣٨٤ كيلو بايت) ونكرر نفس الخطوات السابقة في حالة الاسطوانة الصلبة مع مراعاة استخدام الملفات الأساسية لتشغيل البرنامج وهي:

	Volume in drive A is CADS Directory of A:/				
APC. EXE	APO. EXE	AP1. EXE	AP3. EXE	AP4. EXE	
AP8. EXE	AP9. EXE	AP11. EXE	AP13. EXE	AS. TXT	
AT10. TXT	AT11. TXT	AT12. TXT	AT14. TXT	AT15. TXT	
AT16. TXT	AT17. TXT	AT18. TXT	AT30. TXT	AT40. TXT	
AT116.TXT	AT17. TXT	AT13. TXT	ATBO. TXT	ATDO, TXT	
ATOO. TXT	AT90. TXT	DISK. ID	CURRENT.TXT	CADS.BAT	

ومن مزايا هذه الطريقة :

- اـ تنفيذ خطوات البرنامج بسرعة فائقة لان التعامل مع البيانات وملفات البرنامج يكون
 دائماً في مكان واحد هو الذاكرة العشوائية (RAM) وسيلاحظ أن الفطوات تتم
 بسرعة أكبر من سرعة الاسطوانة الصلبة (Hard disk)
- ٢- توفير ثمن الاسطوانة الصلبة أو المشغل الاضافى (B) سعة ٧٢٠ ك ب (على الأقل).

ولكن من عيوب هذه الطريقة:

فقد الملفات الموجودة في القرض التخيلى (Virtual disk) عند انقطاع التيار الكهربى أو الضغط خطأ على زر Reset المسئول عن اعادة تشغيل الجهاز لأننا كما نعلم تحمل البرنامج ونخزن ملفات البيانات والحل مؤقتا في القرص التخيلي الموجوده في الذاكرة العشوائية (RAM) التي يفقد ما بها من معلومات عند انقطاع التيارالكهربائي . لذلك ننصح المستخدم بتسجيل المسائل المحلولة أولا بؤل باستخدام الأمر Copy بالصورة الاتية:

C:\CADS\A > COPY * · * A:

A	Enter للإنخال . مع مراعاة أن تكون الاسطوانة الموجوة في المشغل	ثم نضغط
		فارغة .

تغينة البرنامج للعمل (Configuration) :

بعد الأنتهاء من نسخ ملفات البرنامج على الاسطوانة الصلبة أو المرنة أو القرص التخيليي يلزم تهيئة البرنامج والمقصود بها :

١- تعريف المكونات الصلبة (Hard ware) للبرنامج وهي :

أ- نوع مشغلات الأقراص المرنة أو الصلبة .

ب نوع الشاشة المستخدمة .

جـ نوع الطابعة المستخدمة .

بالإضافة إلى وسائل مساعدة أثناء تشغيل البرنامج كاصدار اشارات صوتيه تحذيرية عند الخطأ أو عند الخال البيانات .

ويستخدم الملف CONFIG.EXE لتهيئة البرنامج ولابد من وجودة مع ملفات البرنامج في الإسطوانة الصلبة أو المرنة أو القرص التخيليي نكتب الأمر :

B:\> CONFIG	
C:\> CONFIG	
c. o comic	ـــــــــــــــــــــــــــــــــــــ

USER	: TITLE ADDRESS ADDRESS
	ADDRESS/PHONE

SYSTEM: I.B.M XT/AT with 10/20 Mb fixed disk and 1 flopp disk drive

program..... DRIVE a

Data disk DRIVE C

Floopy diskDRIVE A

SCREEN: Colour display/Monochrome display emulating colour

Graphics Supported

Screen Aspect Ratio = .4167.

SOUND: Sound on ERRORS only

PRINTER: IBM/Epson dot-matrix compatible printer

Normal print mode (10 cpi)

Graphics printout supported printer Aspect Ratio = .31

IS THIS CONFIGURATION CORRECT? Y/N (Press Y or N)

وبوجد في السطر الأغير سؤال هل المكونات الصلبة للجهازالمستخدم وامكانية اصدار الصوت منه صحيحة أم تحتاج لتغير.

وانفتر من أنها غير صحيحة فنضغط N فتظهر لنا الشاشة التالية :

SELECT THE OPTION YOU WITH TO ALTER:

1- User Enter correct your name and address: this is used as part

of the title on printout

specify the type of disk drives on your machine, and nom 2- System inate those you wish the program to Use

Specify the type of monitor and graphics card which you 3- Screen. are using in your maching

Select the sound prompts that the program will give you 4- Sound when it requires input and when it detects an error by the user

Specify the type of printer you are using with the program 5- Printer

6-AII Review all the above aptions sequentially

ESC-ESCAPE Return to display of current configuration

Press 1 . 2 . 3 . 4 . 5 , 6 or ESC

والسطر الأخير به الأرقام من [۱]إلى [٦] ثم زر الهروب ESC للعودة إلى الشاشة السابقة

فمثلا عند اختيار الرقم [١] فهو لتغير بيانات المستخدم للبرنامج .

أو أختيار الرقم [Y] فهو لتعبيل مشغلات الأقراص المستخدمة والمناسبة لجهاز المستخدم . فعندما نضغط [Y] تظهر لنا الشاشة الآتية :

Select system type

- 1- I.B.M PC.AT with twin double-sided disk drives .
- 2- I.B.M. XT/AT with 10/20 MB fixed disk and 1 disk drive press 1 or 2.

نختار أى من الأختيارين فمثلا في حالة استخدام مشغلى اسطوانتين مرنتين احدهما ٣٦٠ ك ب والأخرى ٧٢٠ ك ب نختار رقم [١] .

نضغط [١] فتظهر لنا الشاشة الآتية :

I.B.M. PC/AT with twin double-sided disk drives

FROGRAM drive letter = A

DATA drive letter = B

Correct Y/N (Press Y or N)

وتم تعريف مشغل قرص حماية البرنامج (Security disk) بأنه المشغل A ثم نضغط . Enter

وتعريف المشغل B بأنه يحتوى علي ملفات البرنامج اللازمة للتشغيل وكذلك البيانات وملفات الحل ثم نضغط Enter ثم Y لتسجيل البيانات السابقة . أما في حالة استخدام اسطوانة مرنة واحدة وسعة ٣٦٠ ك ب واسطوانة مسلبه (Hard disk) أو اسطوانية واحدة سعة ٣٦٠ ك ب والقرص التخيلي (Virtual disk) نختار رقم [٢] وندخل التعريفات الأتية :

I.B.M. XT/AT with 10/20 Mb fixed disk and one floppy drive

PROGRAM drive letter = a
DATA drive letter = C
FLOPPY drive letter = A
Correct Y/N (Press Y or N)

نضغط Y لتسجيل البيانات السابقة بعد الضغط على Y في أي من الحالتين تظهر لنا الشاشة الرئيسية مرة أخري ويلاحظ ظهور تعديلات في اسماء مشغلات الأقراص المستخدمة لتشفيل البرنامج .

وفي حالة تعديل نوع الشاشة المستخدمة نضغط N ثم [3] 3-screen فتظهر لنا الشاشة الأتدة:

Monitor Selection

Do you have a COLOUR monitor Y/N (Press Y or N)

وفي حالة استخدام شاشة احادية اللون نضغط N أما إذا كانت ملونة نضغط Y .

فنفرض أنها احادية بالضغط على N تظهر لنا الشاشة التالية :

MONOCHROME SCREEN

Select type of adaptor:

- 1- IBM Monochrome Display adaptor (no graphics supported)
- Hercules graphics card/compatible adaptor (720 x 348 graphics resolution)
- 3- Colour display emulation adaptor (640 x 200 graphics resolution)
- 4- Multigraph Display adaptor configured to Monochrome Graphics 1 (720 x 348 graphics resolution)

Press 1, 2, 3 or 4

يختار المستخدم نوع الشاشة المناسبة له وذلك بالضغط على [١] أو [٢] أو [٣] أو [٤] ويجيب عن نوع الأختيارات المتوافقة مع الشاشة وتظهر له الشاشة التالية:

وبها نسبة ظهور الرسومات على الشاشة والطابعة

GRAPHICS ASPECT RATIO

The aspect ratio is the ratio of y units to x needed to provide equal length in both directions. It should be adjusted to suit your monitor and your (graphics) printer (if applicable).

Typical approximate values are:

0.6667 (Monochrome 720 x 384 pixel graphics display)

0.62 (I.B.M / Epson compatible dot matrix printer)

Screen Aspect Ratio: .6667 Printer Aspect Ratio: .62<

نضغط Enter فتظهر إنا الشاشة الرئيسية .

في حالة استخدام شاشة ملونة نضغط Y فتظهر لنا الشاشة التالية :

COLOUR MONITOR SELECTION 0.BLACK
Enter reference no.s from 1. BLUE

table shown right. 2. GREEN

3. CYAN 4.RED 5.MAGENTA

6.BROWN 7. WHITE 8.GREY

9.LIGHT BLUE

10. LIGHT GREEN

11.LIGHT CYAN

12. LIGHT RED

13. LIGHT MAGENTA

14.YELLOW

15. HIGH INTENSITY WHITE

NORMAL background colour (0 to 7) - 5

NORMAL foreground colour (0 to 15) - 7

REVERSE background colour (0 to 7) - 7

REVERSE for eground colour (0 to 15) - 5

Surrounding border colour (0 to 7) - 5

ويتم اختيار الوان الخلفية والكتابة والبراويز تبعا لرغبة المستخدم نضغط Enter فتظهر لنا الشاشة التالة:

This is an example screen

0 Option No. 0

1 Option No. 1

2 Option No.2

3 Option No. 3

This is the prompt line

Graphics supported

Colour Display or Monochrome display emulating colour

Are these colous / options acceptable Y.N (press Y or N)

ويلاحظ أن الألوان المختارة ، تظهر على الشاشة كعينة ولكي يقبلها أو يعدل فيها المستخدم نضغط Y للموافقة فتظهر لنا الشاشة التالية :

GRAPHICS ASPECT RATIO

The aspect ratio is the ratio of Y units to X needed to provide equal length inboth directions. It should be adjusted to suit your monitor and your (graphics) Printer (if applicable).

Typical approximate values are:

0.41667 (Colour monitor/colour compatible card)

0.3 (I.B.M / Epson compatible dot matrix printer)

Screen Aspect Ratio: .41667 Printer Aspect Ratio: .31<

نفسفط Enter مرتين للعودة للشاشة الرئيسية نضفط N ثم 4 لتعديل المسوت -4 sound منتظهر لنا الشاشة التالية وبها اختيارات المسوت عند ادخال البيانات أو الأخطاء أو كلاهما معا أو الفاء المسوت .

Select Sound Options

- 1- Sound on input and errors
- 2- Sound on errors only
- 3- No Sound

Press 1, 2 or 3

بالضغط على [١] أو [٢] تظهر لنا الشاشة التالية وبها نغمة الصوت المطلوب

ERROR sounds:

Press 1 to hear BOO-BOO sound

Press 2 to hear FANFARE sound

Press 3 to hear WARBLER sound

Press 4 to hear RED ALERT sound

Press 5 to make selection from above sounds

نضغط Enter للعودة للشاشة الرئيسية

نضغط N ثم 5 لتعديل نوع الطابعة 5-Printer فتظهر لنا الشاشة التالية :

Select printer type:

- 1- IBM / Epson compatible dot-matrix printer
- 2- C.Itoh / ACT writer 10, 12 or 20 dot-matrix printer
- 3- Any other standard ASCII printer

Press 1, 2 or 3

نختار نوع الطابعة المناسبة ثم نضغط Enter للمودة الشاشة الرئسية فيظهر سؤال space في إسفل الشاشة التسجيل التعديلات ولذلك نضغط Y ثم مسطرة المسافات Bar فتحفظ في الملف Disk . ID ويذلك تم تهيئة البرنامج تبعاً لنوع الجهاز المستخدم وإمكانياتة والعودة لنظام التشغيل نضغط (N)

الباب الثالث إدخــال البــيانــــات

احداثيات نقاط الهنشأ Joint Positions

اعضاء الهنشأ وحالة الوصلات

Member location and Fixity

الخواص الإنشائية للقطاعات والأعضاء Properties

الركائز Supports

الأحمال Loads

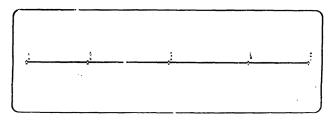
احداثيات نقاط الهنشأ Joint Positions

إن تحديدا حداثيات نقاط المنشأ هي الخطوة الأولى والأساسية لابخال بيانات صحيحة للبرنامج ويمكن استخدام الاحداثيات الكارتيزية والنسبية لذلك.

الاحداثيات الكارتيزية :

- * نفترض أن أحد نقاط المنشأ هي نقطة الاصل (صفر ، صفر) والمحور السيني -X)
 (x- منوج في الاتجاء اليمين والمحور الصادي (Y- axis) موجب في الاتجاء لاعلي.
- * ترقم نقاط النشا بحيث يكون الفرق بينهما اقل ما يمكن (٢، ٢، ٢، ٤ ومكذا) .
- * يحسب الاحداثي السيني والمنادي لكل نقطة في المدى من ٩٩٩٩ متر حتى . +٩٩٩٩ متر .

مثال كما بالرسم كمرة مستمرة مرتكزة على خمس مساند (Supports) ومطلوب احداثيات نقاط الكمرة.

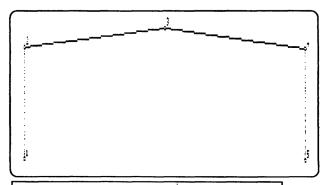


Joint Coordinates

Joint	X(m)	Y(m)
1	0	0
2	3	0
3	7	0
4	11	0
5	14	0

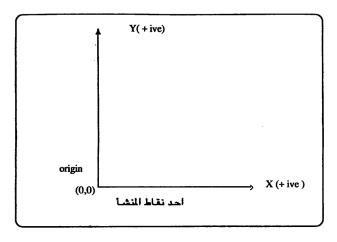
•

مثال كما بالرسم اطار هيكلى (Frame) سطارب احداثيات نقاط الاطار .



Joint	X(m)	Y(m)
1	0	0
2	0	6
3	10	7
4	20	6
5	20	0

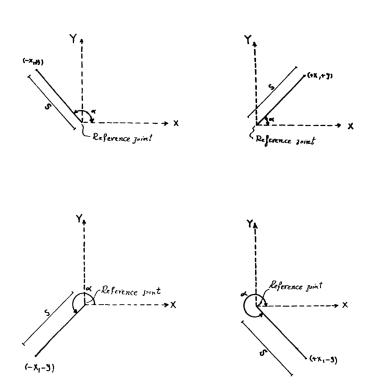
ملاحظة : يمكن أختيار المحور السيني والصادي عند أي نقطة من نقاط المنشا مع مراعاة قاعدة الاشارات الموضحة بالرسم .



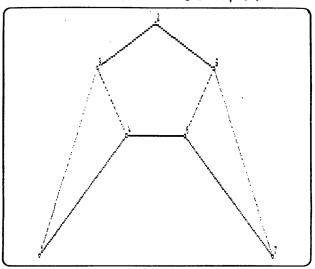
: (Relative Coordinates) الأحداثيات النسبية

- * يفترض ان احد نقاط المنشأ المعلومة الاحداثيات (السينى والصادى) هي نقطة الاساس (Reference Joint) .
 - * تنسب إليها نقطة أو النقاط التالية بمعلومية أي من الأتي:
 - 1. المسافة الأفقية والرأسية X & Y offsets
 - X & Angle إلى المنافة الافقية وزاوية الميل
 - 1- المسافة الرأسية وزاوية الميل Angle . Y & Angle
 - 1. Slope length & Angle إلى المسافة المائلة وزاوية الميل

والأنجامات الموجبة للمحاور وزاوية الهيل موضحة بالرسومات التالية:



مثال كما بالرسم أطار هيكلي (Frame) ومطلوب احداثيات نقاط الاطار :

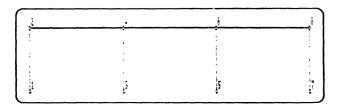


Joint	Reference Joint	Relative method	X(m)	Y (m)
1 2 3 4 5 6 7	- 1 2 3 3 5	- X= 10 m, Y=15 X=-5, A= 210 Slope=5, A=300 X=10, Y=0 Slope=5, A=240 X=20, Y=0	0 10 5 7.5 15 12.5 20	0 15 12.113 7.783 12.13 7.783 0

: Joints pattern repeat الأحداثيات المتكررة

يمكن استخدام هذه الخاصية في حالة المنشاءات ذات الابعاد المتكررة في اتجاه المحور الافقى أو الرأسي أو في أي اتجاه مائل ولاستخدامها نتبع الخطوات الآتية:

- ١- أختيار النقطة أو النقاط التي يمكن التكرار على اساسها (Pattern repeat) .
- ٢- انخال الاحداثيات الافقية والراسية للنقطة أو النقاط السابقة (Coordinates).
 - ٢- ادخال أساس المتوالية العدبية اللازم لترقيم النقاط (Joint increment) .
 - ٤ ادخال عدد مرات التكرار (Number of repeats)
 - ه انخال اتجاه التكرار وقيمته (Value & direction of repeat) .
- مثال كما بالرسم اطار هيكلي (Frame) ومطلوب احداثيات نقاط الاطار .



١ ـ ادخال احداثيات النقطتين ١ ، ٢ وهما علي الترتيب (صفر ، صفر) ، (٠ ، ٥) م .

٢. يمكن حساب قيم الاحداثيات الافقية والراسية لنقاط المنشأ بتكرار النقطتين ١ ، ٢ كما
 بالرسم .

٣- اساس المتواليه العددية هو ٢ أي ترقيم آخر نقطة من نقاط التكرار .

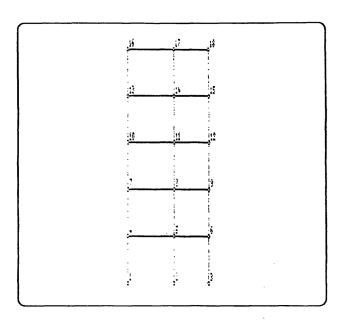
£ عدد مرات التكرار ثلاثة مرات .

م. قيمة التكرار = ١٠ م وفي اتجاه المحور الاففي (س = ١٠ ، ص = صفر) .

وبعد ادخال البيانات السابقة يحسب البرنامج قيم الاحداثيات الافقية والراسية لجميع نقاط المنشأ بمعلومية نقطتي الاساس ١ ، ٢ وهي :

Joint	X(m)	Y(m)
1	0	0
2	0	5
3	10	0
4	10	5
5	20	0
6	20	5
7	30	0
8	30	5

مثال كما بالرسم اطار هيكلي (Frame) ومطلوب احداثيات نقاط الاطار.



١- ادخال احداثيات النقاط ١، ٢، ٣ وهلي على التوالي (٠،٠) ، (٤،٠) ، (٧،٠) .

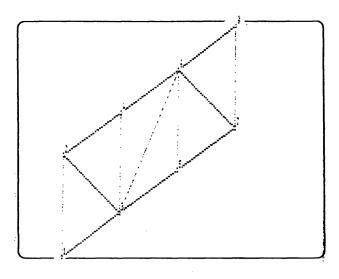
٢. يمكن حساب قيم الاحداثيات الافقية والراسية لنقاط المنشأ بتكرار النقاط ١ ، ٢ ،
 ٣ في الاتجاه الراسي كما بالرسم .

". اساس لمتوالية العددية هو " أي ترقيم آخر نقطة من نقاط التكرار.

ل عدد مرات التكرار خمس مرات .

م. قيمة التكرار Υ م وفي اتجاء المحور الراسي ($m = \cot x$ ، column = 0) وبعد الخال البيانات السابقة يحسب البرنامج قيم الاحداثيات الافقية والراسية لجميع نقاط المنشأ بمعلومية نقاط الاساس V ، V ، V .

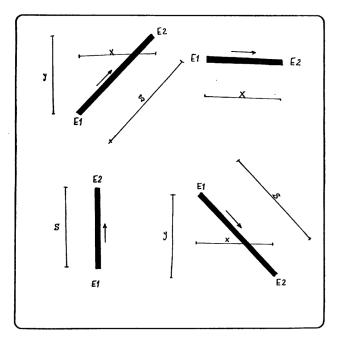
مثال كما بالرسم جمالون (Truss) ومطلوب احداثيات نقاط الجمالون



- ٢. اساس المتوالية العددية هو ٢ أي ترقيم آخر نقطة من نقاط التكرار.
 - £ عدد مرات التكرار ثلاثة مرات .
- ه. قيمة التكرار (س = ٣م ، أ= ٣٠) أن (ص = ٤ م ، أ = ٣٠) . وبعد ادخال البيانات السابقة يحسب البرنامج قيم الاحداثيات الافقية والراسية لجميع نقاط المنشأ بمعلومية احداثيات نقطتى الاساس ١ ، ٢ ويمكن استخدام الطول المائل المتكرر المتساوى (Slope) وزاوية الميل في حساب احداثيات نقاط المنشأ .

اعضاء الهنشأ وحالة الوصلات Member Location and Fixity ا- اعضاء الهنشأ Members :

بعد الانتهاء من حساب ترقيم واحداثيات نقاط المنشأ يجب ادخال الاعضاء المكونة له وكل عضو يسمى (Agoints) ويصل بين نقطتين فقط من نقاط المنشأ (2-Joints) واحدة عند النهاية الثانية (E2) مع مراعاة ان تكون النهايتين طبقا للرسم ويدون أي تعديل من مستخدم البرنامج

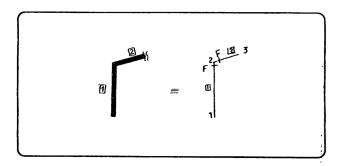


ولابد من ادخال اعضاء المنشأ بنفس ترتيب النهايات الموضحة بالرسم السابق.

: Fixity حالة الوطلات - ٦

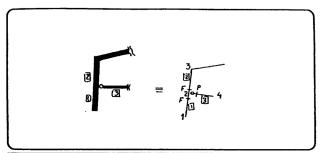
عند ادخال أى عضو (Member) بالمنشأ تعرف النهايتان بالترقيم وحالة النهاية هل هي صلبة (Fixed) ويرمز لها بالعرف (F) أو مقصلة ويرمز لها بالعرف (P) فمثلا عند وجود:

* وصلة (Fixed) في اطار هيكلي Frame يعرف العضوان ١ ، ٢ كالاتي :



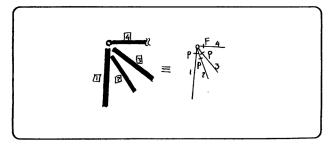
E1	Jt cond.	E2	Jt cond
1	F	2	F
2	F	3	F
	E1 1 2	1 F	1 F 2

* وصلة صلبة (Fixed) في الحار هيكلي (Frame) وبها عضو (Hinged) تعرف الاعضاء ٢، ٢، ٢ كالاتي:



Member	E1	Jt cond.	E2	Jt cond
1	1	F	2	F
2	2	F	3	F
3	2	P	4	P
		1		l.

* وصلة مفصلة (Pinned) في جمالون (Truss) تعرف الاعضاء ١ ، ٢ ، ٢ ، ٤ كالاتي كلها مفصلة (P) ما عدا أي عضو منهم لا بد أن يكون F وهذا شرط اساسي لاتزان الوصلة والتأكد من صحة ادخال الوصلة فإن مجموع العزوم عندها = صفر .

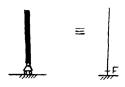


۰۰۰ع ۽ = منفر

· · · الوصلة تحقق الشرط انها مفصلة (Hinged - Pinned)

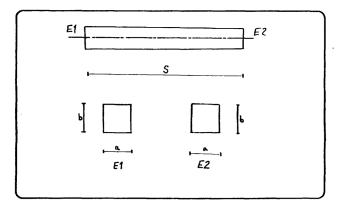
* وصلة مع الركائز (Supports) :

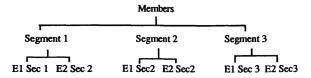
فى هذه الحالة لا بد أن نطبق قاعدة البرنامج وهي وجود F واحدة على الاقل عند كل وصلة وهنا وصلة العضو مع الركيزة لابد أن تكون (F) وسنوضح كيفية تعريف الركيزة على أنها (Fixed - Hinged - Roller) فيما بعد بفصل الركائز (Supports)

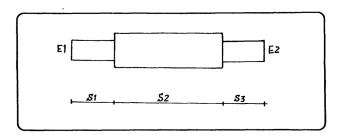


الخواص الانشائية للقطاعات والاعضاء Properties

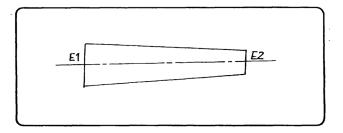
ويجب الآن الخال خصائص القطاعات والاعضاء ويتعامل البرنامج مع الاعضاء _ المنتظمة وغير المنتظمة المقطع (كما بالرسم) غالنهاية الاولي توجد في اقصى اليسار (E1) والنهاية الثانية (E2) في أقصى اليمين للمضو (Member) ويمكن تقسيمه إلى اجزاء Segments ولا يشترط أن يكون لها نفس الطول وتبدأ بقطاع (Section) وتنتهى بقطاع (Section) .



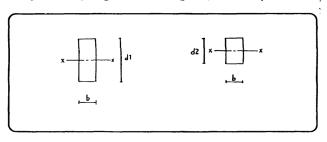




مثال عمود لاطار هيكلي (Frame) غير منتظم المقطع كما بالرسم :



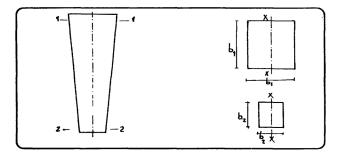
ويحسب عزم القصور الذاتي للقطاع الاول Sec 1 والقطاع الثاني Sec 2 كالاتي :



$$I1 = \frac{b d^31}{12}$$
 , $I2 = \frac{b d^32}{12}$

محور × - × تنور حوله عزوم الانحناء (Bending Moment):

مثال : عمود لاطار هيكل (Frame) غير منتظم المقطع كما بالرسم :



ويحسب عزم القصور الذاتي للقطاع الاول Sec 1 والقطاع الثاني Sec 2 كالاتي :

$$I1 = \frac{b^4 1}{12}$$
 , $I2 = \frac{b^4 2}{12}$

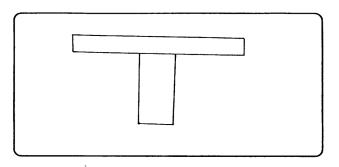
وبذلك أمكن تعريف العضو الغير منتظم المقطع من نهايته الاولى إلى الثانية (Non Prismatic) .

وفى حالة انتظام المقطع من النهاية الاولى إلى الثانية يعرف العضو على انه منتظم المقطع Prismatic .

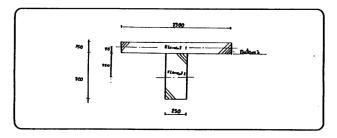
ويلاحظ في بعض الاعضاء الانشائية يكون القطاع علي هيئة T-sec, I-sec ويمكن البرنامج توصيف ذلك القطاع وحساب مساحته وعزم القصور الذاتي له مباشرة عن

طريق تقسيم القطاع (Section) إلى عناصر (Elements) ولكل عنصر ندخل الطول والعرض.

مثال : قطاع على هيئة (T-sec) كما بالرسم :



- ١- نختار أي محور أفقى لننسب له بعد مركز الثقل للعناصر المختلفة (Datum) .
 - ٢ـ نقسم القطاع إلى عناصر مستطيلة القطع .
- ". ندخل الطول والعرض وبعد مركزه الثقل بالنسبة للمحور الاختياري Datum .
- ٤ـ يتم حساب المساحة وعزم القصور الذاتي للقطاع مباشرة عن طريق البرنامج .



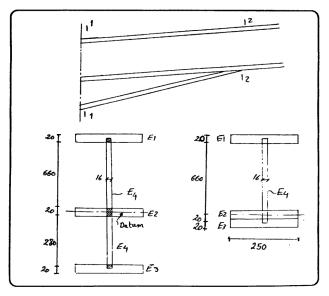
Element	Y mm	b mm	d mm
1	75	1500	150
2	-350	250	700

وبذلك نحصل على خصائص القطاع باستخدام البرنامج مباشرة ويعون أى حسابات من الستخدم

Area =
$$4000$$
 cm²
Inertia = 875880 cm⁴

ويمكن للبرنامج توصيف قطاعات واعضاء المنشأت الحديدية Steel Structures

مثال جزء من كمرة عند اتصالها بالعمود الراسى لاطار هيكلي (Frame) .



١- نختار المحور الافقى عند منتصف انعنصر الثاني (Datum) .

Y- تم تقسيم القطاع إلى اربعة عناصر عند القطاع الكبير Sec 1 والصغير Sec 2 مع مراعاة ان كل عنصر هو نفسه في القطاعين حتى لو تلاشي واصبح غير موجود نفرض طوله أو عرض = صفر وبذلك تصبح مساحته وعزم القصور الذاتي + + صفر أي أنه غير موجود .

وايضًا لابد أن يكون المحور الافقى (Datum) في القطاعين في نفس الموضع أي عند منتصف العنصر الثاني .

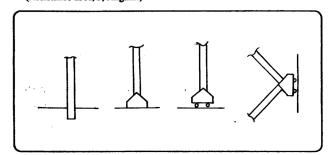
والجنول الاتي يوضع القيم المطلوبة لحساب المساحة وعزم القصور للقطاعين بواسطة البرنامج ويدون أي حسابات من المستخدم .

Sec 1				Sec 2			
Element	у	b	d	Element	y	b	d
1	680	250	20	1	680	250	20
2	0	250	20	2	0	250	20
3	-300	250	20	3	-20	0	20
4	200	16	960	4	350	16	660

ويهمل التداخل بين العصب (Web) والفلنشة (Flange) الوسطى فى حساب المساحة وعزم القصور الذاتى للقطاع في الحالتين .

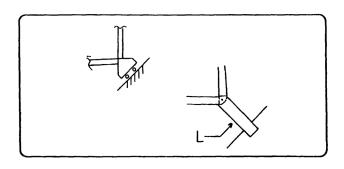
الركائز : Supports

بعد الخال الشكل الهندسي للمنشأ علي هيئة نقاط (Joints) وأعضاء (Members) ويتم ذلك وكذلك الخواص الانشائيه له (Properties) بلزم تعريف الركائز (Supports) ويتم ذلك على أساس مقاومتها للحركة في الاتجاه الأفقى والرأسي والدوران (Resistance in X.Y. Angular)



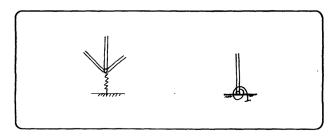
Support Resistance	Fixed	Hinged	VL Roller	HZ.Rroller
X-direction Y-direction Angular Direction	Full (F) Full (F) Full (F)	Full (F) Full (F) Zero	Zero Full (F) Zero	Full (F) Zero Zero

وكما نعلم فى حالة الدعامة التي تسمح بالحركة المستقيمة (Roller) إذا كانت في وضع ماثل كما بالشكل فيلزم فرض عضو غير مؤثر (Dummy) طوله ل وندخل كافة بيانات هذا العضو كأى عضو عادى .



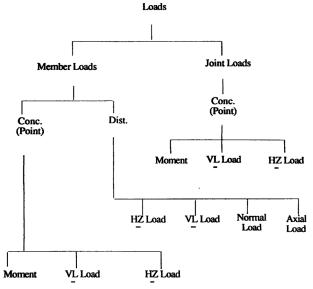
ولجعل رد القعل (Reaction) في اتجاه عمودي على السطح المائل تفرض قيمة كبيرة لساحة المضو مثلا ١ × ١٠٠ سم ٢ لأنها تتحمل القوى المحورية (Normal Force) أما عزم القصور الذاتى فيعطى قيمة صفيرة ١٠٠١ سم ٤ لانه يتحمل عزوم الانحناء وبذلك يتمكن القطاع من تحمل القوى العمودية (Normal Force) وفي اتجاه عمودي على السطح المائل أي أن رد الفعل يصبح لركيزة (Roller) .

ويسمح البرنامج أيضا بانضال الركائز المرنه Elastic Supports مثل الزنبرك (Spring) وتعطى قيمة لمقاومة الركيزة في أي اتجاه وهي تعبر عن القوة اللازمة لتحريكها في هذا الاتجاه بمقدار وحدة أطوال أو دوران .



الاحمال Loads

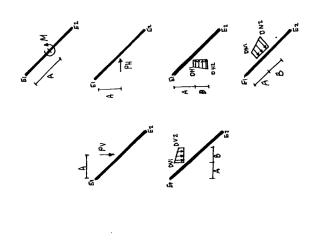
ً بعد الانتهاء من ادخال الركائز نبدأ في تعريف الاحمال للبرنامج. وفي البداية يجب ان نتعرف على انواع الاحمال المختلف وهي



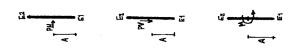
ربعد ذلك نعد البيانات الاتية

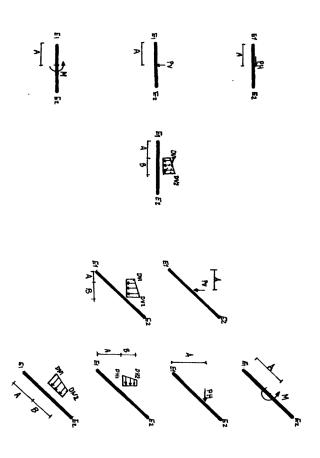
١ ـ تسميه كل الاحمال المتوقعة على المنشأ (...Dead Load, Live Load)

٢ ــ تحديد الاحمال المتوقعة على كل عضو بالمنشأ (Member Loads) مقدار وإتجاه
 ونطاق التأثير او على كل نقطة بالمنشأ (Joint Loads) مع مراعاة الاشارات الموجبة
 المضحة بالرسم









- ونلاحظ الاتي : __
- _ الاحمال الرأسية موجبة في الاتجاه لاسفل (Vertical Loads)
- _ الاحمال الانقية موجبة في الاتجاه اليمين (Horizontal Loads)
- ــ الاحمال العموبية على طول العضو موجبة عندما يكون عزمها حول النهاية الاولى (E1) للعضو في اتجاه عقرب الساعة
 - الاحمال المحورية موجبة عندما تتجه النهاية الاولى (Axial Loads)
 - _ العزوم موجية في عكس اتجاه عقرب الساعة (Moments)
 - يرمز بالحرف (A) البعد بين نقطة تاثير الحمل المركز والنهاية الاولى(Point Load)
- يرمز بالحرف (A) البعد بين بداية تأثير الحمل الموزع (Piont Load) والنهاية الاولى(E1) والطول الموثر يرمز له بالحرف (B)
- يؤثر الحمل الموزع (Dist Load) على طول العضو بالكامل أو جزء منه وله قيمتان عند النهاية الاولى (El) والنهاية الثانية (E2)
- _ يعرف الحمل الموزع بانتظام (Uniform Dist. Load) بانه يؤثر على طول العضو بالكامل وله قيمة واحدة عند النهاية الاولى (E1) والثانية (E2)

البساب الرابسسح

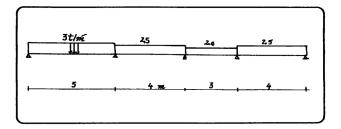
(مثلسة عمليسة

أمثله عملية.

بعد الانتهاء من إتقان الخطوات الأساسية للبرنامج والتي تم شرحها في الأيواب السابقه نبدأ في حل الأمثلة التالية بالتفصيل وباستخدام الحاسب الشخصى مع شرح تفصيلي كامل لكل منها:

ا - المثال الأول :

كمرة مستمرة (Continuous beam) وعليها أحمال موزعة بانتظام (uniform distributed load) كما بالرسم:



- خطوات الحل :

١- بعد تحميل البرنامج نضغط [Y] للاستمرار فتظهر لنا الشاشة الاتيه :

- 0 End program
- 1 Start New Job
- 2 Reselect Previous Job
- 3 Disk Utilites

4 Job Size check

Before running a job for the first time, seelect option 3 from the above menu, then make a data disk and backup copies of the program disk(s).

Key option required

F1 F2 Help Calc NUMLOCK is ON

٢- نضعط [١] البدء في انتقال بيانات منشأ جديد Start new Job ا فتظهر لنا الشاشة
 التالية:

Start a new job

Ensure that the ANALYSE Security Diskette is in the floppy drive

This disk must not be removed whilst the job is in progress or the program will stop and the data just entered will be lost.

Press 1 when ready to continue, or ESC to escape to the main menu

F1 HELP F2 CALC NUMLOCK

is ON

والغرض منها التلكد من وجود (Security diskette) في المشغل (A or B) . ٣- نضغط (١) للاستمرار فتظهر لنا الشاشة التالية : List of jobs on disk

NO JOBS ON DATA DISK

Enter new job reference (1 to 6 chars)

Job Reference = 0

(Press ESC to escape)

F1 F2 help Calc

NUMLOCK is ON

وبها اسماء المنشأت السابقة التي تم حلها.

ملاحظة هامة :

فى حالة ادخال اسطوانه غير (Security diskette) لن تستطيع التعامل مع البرنامج فى حالة ادخال اسطوانه غير (Security diskette) فى أساسيه ولابد من وجودها دائما فى المشفل الخاص بها ولا يمكن الاستفناء عنها لتشفيل البرنامج من البداية إلى النهاية ولا تخرج من المشفل الخاص بها إلا بعد الانتهاء من استخدام البرنامج .

٤- ندخل اسم المنشأ وليكن (Beam) بحيث لا يزيد عن سنة أحرف وفي حالة الرغبة في
 العربة للشاشة السابقة نضغط [Esc] ربعد ادخال الاسم نضغط [Enter]
 Job Reference = Beam

فتظهر لنا الشاشة التالية :

List of Jobs on disk

49 Kb space free

NO JOBS ON DATA DISK

Enter new job reference (1 to 6 chars) Job Reference = BEAM

· Correct Y N

F1 F2 NUMLOCK

Help Calc is ON

والموافقة على الاسم نضفط [Y] واتغير الاسم نضغط [N]

Correct [Y] [N]

ه- نضغط [Y] فتظهر إنا الشاشة التالية :

Current job refenence = BEAM

0 End this job

1 Joint Positions

Key option required

F1 Help

F2 Calc NUMLOCK

is ON

بالضغط على [0] ننهى هذا المنشأ بدون انخال أي بيانات

أما بالضغط على [1] ندخل نقاط المنشأ Joint Positions [1]

٦- نضغط [1] فتظهر لنا الشاشة التالية :

Joint positions

Jt. X coord Y coord

No. (m) (m)

1 0.000<

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Commnd Bottom Escape is ON

السطر الأول به عنوان الشاشة نقاط المنشأ Joint positions

والثاني به رقم كل نقطة سيتم ادخال احداثياتها Jt NO .

وأيضا الاحداثي السيني (X coord) والصادي (Ycoord) ووحدة الأطوال هي المتر.

وفى اسفل الشاشة توجد مريعات عليها ارقام مفاتيح الوظائف بلوحة المفاتيح $(F1\,,F2\,,F6\,,F7\,,F8\,,F9\,,F10\,)$

فبالضغط على [F1] في أي لحظة تظهر شاشات المساعدة والرجوع لشاشة الانخال نضغط [Esc] .

ويلاحظ ان شاشات المساعدة تتوافق المعلومات الموجودة بها مع شاشة الادخال مثلا منا توضع شاشات المساعدة قواعد ادخال احداثيات نقاط المنشأ .. وهكذا .. والتنقل بين شاشات المساعدة نضغط [F3] الرجوع التنقل بين شاشات المساعدة نضغط [F4] الرجوع صفحة الخلف ، [F5] الرجوع الفهرس ، [F6] التقدم صفحة للامام ، [ESC] العودة الشاشة ادخال انقاط المنشأ .

وبعد هذه الجوله السريعة نبدأ في الخال احداثيات نقاط المنشأ وهي :

JT	X	Y
1	0	0
2	5	0
3	9	0
4	12	0
5	16	0

- ويلاحظ أن الموشر المضئ عند النقطة رقم (١) وينتظر اعطاء الاحداثي السيني (X)
 لها وقيمته (صفر) ثم نضغط [Enter] للادخال . ندخل قيمة الاحداثي الصادي (Y)
 وقيمته (صفر) ثم نضغط [Enter] للأدخال .
- وينفس الطريقة ندخل احداثيات النقطة (٢) وهي (٥ ، صفر) وهكذا حتى النقطة
 (٥) وهي (١٦ ، صفر) .
- البيانات أو البداية ، [F6] الوصول إلى قمة البيانات أو البداية ، [F7] الوصول إلى الضافة الأسفل ، [F10] الوصول إلى الضافة الأسل ، [F10] الوصول إلى نهاية البيانات .

٧- بعد الأنتهاء من ادخال الاحداثيات تظهرلنا الشاشة التالية :

Joint p	ositions	
Jt.	X cord	Y cord
No	(m)	(m)
1	0.000	0.000
2	5.000	0.000
3	9.000	0.000

4	12.000	0.000
5	16.000	0.000
	0.000	

6 0.000

Input mode

٨- نضغط [ESC] لتسجيل احداثيات نقاط المنشأ فتظهر لنا الشاشة التالية :

Current Job reference = BEAM

48Kb Disk space free

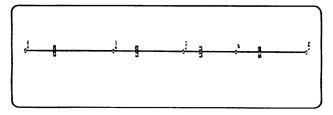
0 End this job

1 Joint Positions

2 Member Locations & fixity

D Draw the Structure

٩- نضغط [2] لانخال بيانات أعضاء المنشأ(Member Location & Fixity) الموضعة
 بالرسم:



فتظهر لنا الشاشة التالية :

Member location and fixity

Mem J1. Jnt X1 Coord Y1 Coord 12 . Jnt X2 Coord Y2 Coord Length Slope
No no. con (m) (m) no. con (m) (m) (m) (deg)
1 0<

Inpout mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Commnd Bottom Escape in ON

وطبقا القواعد الخال الأعضاء الموضح صفحة (٥٣) فعند النقطة (١) لابد من وجود عضو واحد على الأقل له خاصية (Fixed) وبذلك فالنهاية الأولى (F) وعن النهاية الثانية يتولد عزم سالب (negative moment) فلابد من وجود (F) أيضا وهكذا تم توصيف أعضاء المنشأ الموضحة بعالية .

نعود مرة أخرى لادخال البيانات فالسطر الأول به العنوان أعضاء المنشأ وخصائص (Memb. NO) وصالاتها (Memb. NO) والثاني يوضحه رقم العضو (Member Location and Fixity) ورقم نقطة البداية له (J1.NO) ونوع الوصلة عندها (J1.NO) والاحداث السينى لها (X1 coord) والاحداثى الصادى لها (Y1 Coord) ثم رقم نقطة النهاية له (Jnt. con) ونوع الوصلة عندها (Jnt. con) والاحداثى السينى (X2 Coord) والاحداثى المادى لها (Slope deg) ويمكن إدخال نيانات اعضاء المنشأ كالآتى:

Member	J1	J1.con	J2	J2.Con
1	1	F	2	F
2	2	F	3	F
3	3	F	4	F
4	4	F	5	F

ونعود مرة أخري لادخال البيانات البرنامج فيلاحظ وجود المؤشر عند بيانات العضو الأولى (1 Joint1) (1) ثم الأولى (1 Joint1) (1) ثم حالتها (4) وهي نقطة (1) (1 Joint1) ثم حالتها (F) والموافقة نضغط [Enter] فتظهر على الشاشة احداثيات النقطة (1) تلقائيا (صفر . صفر) ثم ندخل النهاية الثانية وهي نقطة (٢) (Joint2) وحالتها (F) والموافقة نضغط (Enter) فتظهر احداثيات النقطة (٢) على الشاشة تلقائيا ثم طول العضو (Length) وميله Slope وينفس الطريقة ندخل باقي أعضاء المنشأ حتى العضو الرابع والأخير فتظهر الشاشة التالية:

Member Location and fixity

Mem J1. Jnt X1Coord Y1Coord J2 Jnt X2Coord Y2coord Length Slope No. no Con (m) (m) no con (m) (m) (m) (deg) 0.000 2 F 0.000 5.000 0.000 5.000 0.000 0.000 3 2 F 5.000 F 9.000 0.000 4.000 0.000 0.000 4 3 3 F 9.000 F 12.000 0.000 3.000 0.000 F 12.000 0.000 5 F 16.000 0.000 4.000 0.000 5 5

Input mode

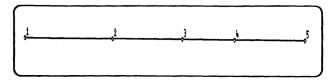
F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top up down commnd Bottom Escape is ON ملاحظة : عند حدوث أى أحطاء فى إدخال بيانات الاعضاء تستخدم مغاتيح الوظائف (F6) الموجودة أسفل الشاشة التصحيح وهى [F6] الوصول إلى بداية البيانات. [F10] الصعود لاعلى و [F8] الهبوط لاسفل و [F10] النهاية البيانات .

وبعد الأنتهاء من تعديل البيانات نضغط [ESC] للتسجيل فتظهر لنا الشاشة التالية :

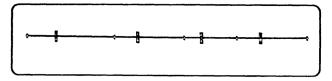
Current Job reference = BEAM	47 kb Disk space free
0 End this job	·
1 Joint positions	
2 Member locations & fixity	
3 Properties	
D Draw the Structure	į
Key option required	
F1 F2	NUMLOCK
Help Calc	is ON
ة رسم المنشا والتأكد من ابعاده ونقاطه	١٠ نضغط (Draw the structure) [D] لشاهدة
	واعضائه فتظهر لنا الشاشة التالية :

ويها كمره مستمرة وعند كل نقطة تظهر دائرة صغيرة وهي ليست مفصلة (Hinge) ولكن البرنامج يرسم كل Joint على هيئة دائرة صغيرة بصرف النظر عن حالتها إن كانت (Fixed) أن (Fixed) نستخدم مفاتيح الوظائف المجودة اسفل الشاشة.

فمثلا نضغط [F4] ثم [F3] لاظهار نقاط المنشا (Joints) على الرسم



أو نضغط [F4] ثم [F4] لاظهار اعضاء المنشأ (Members) على الرسم



أو نضغط [F4] ثم [F5] لاظهار نقاط واعضاء المنشأ (Joints & Members) على الرسم وللعودة للشاشة الأولى بالرسومات نصغط [ESC].

نضغط [F3] ثم [F4] للعودة للشاشة الأولى بدون أي ترقيم للنقط والاعضاء .

نضغط [ESC] ثم Y للعودة للشاشة الرئيسية

١١ـ نضغط [3] لايخال خصائص قطاعات واعضاء المنشأ (properties) فتظهر لنا
 الشاشة التالية:

Table of Sections

Section Area Inertia No. of

No. (cm2) (cm4) Elements

1 0.000

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up down commnd Bottom Escape is ON

ويوجد بالسطر الأول العنوان وهو جدول قطاعات اعضاء المنشأ (Table of sections) ويوجد بالسطر الشائي به قطاع رقم (١) (Section No1) والمساحة (Area Cm2) وعزم المسطر الثاني به قطاع رقم (١/) (No of Elements) .

نفرض أن قطاع الكمرة المستمرة ثابت وهو ٢٥سم × ٤٠ سم مثلا فتكون المساحة = ١٠٠٠ سم؟ وعزم القصور الذاتي = ٢٣٣٣٣ سمة .

نستخدم مفاتيع الوظائف الموجودة اسفل الشاشة نضغط [F9] (Command) ثم (Member) [F6] التوضيح قطاعات كل عضو من اعضاء المنشأ فتظهر لنا الشاشة التالة:

Table of	Section M	ember Section	on Properties	s					
Section	Area	Inertia	No. of	Mem	Member		No.	Sec.	Modulus E
· No	(cm2)	(m4)	Elements	No.	Length	N/P	Seg	No.	(N/mm2)
1	1000.000	133333.33	0	1	5.000	P	1	1	21000
2	0.000			2	4.000	P	1	1	21000
				3	3.000	P	1	1	21000
				4	4.000	P	1	1	21000

input mode

F1 F2 F6 F7 F8 F9 F10 SEC NUMLOCK Help Calc Top Up Down Commnd Bottom Escape is On

يوجد بالسطر الأول خصائص قطاعات الأعضاء (Member Section Properties) ويوع المقطع (N/P) على ورقم العضو (Member Length) وبنوع المقطع (Member NO) وبنوع المقطع (Prismatic) أو غير منتظم المقطع (Prismatic) أو غير منتظم المقطع (No. Seg) ورقم القطاع الخاص بالعضو وتم الخال كل القطاعات في الجزء الايسر من الشاشة (Sec.No.) ثم معامل ينج بوحدة (N/mm2) واتحويله إلى المعامل الخاص بالخرسانة نقسم على المعامل ١٠٠ . ١٥

نضغط (P) لجعل العضو الأول منتظم المقطع (Prismatic) من النهاية الأولى حتى النهاية الثانية فتظهر عدد الاقسام (NO.Seg) بقيمة = 1 وبعد ذلك ندخل رقم القطاع (Sec.NO.) بقيمة = 1 وهو موجود في يسار الشاشة المساحة = ١٠٠٠ سم٢ (Area) وعزم القصورالذاتي = ١٠٠٠سم٤ (Inertia) ونعدل قيمة معامل ينج من الحديد

(١٠٠٠٠ نيوټين/مم٢) إلى الخرسانة بالقسمة على (١٠–١٥) وتصبح قيمة معامل ينج من ١٤٠٠ – ٢١٠٠٠ نيوټن /مم٢ ندخل نفس القطاع لباقى الاعضاء حتى الرابع والاخير.

ملاحظة : نستخدم زر الادخال [Enter] للموافقة على القيم السابقة في كل مرة التعديل في أي بيانات نستخدم مفاتيح الوظائف الموجودة أسفل الشاشة نضغط [ESC] للتسجيل فتظهر الشاشة التالية :

Current Job reference = BEAM 47 Kb Disk space free

- 0 End this job
- 1 Joint Positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- D Draw the Structure

نضغط [٤] لادخال الركائز (Supports) فتظهر الشاشة التالية :

Supports

No. Jnt X Restraint Y Restraint A Restraint
Pos (Kn/nm) (KN/mm) (KNm/rad)
1 0

Input mode

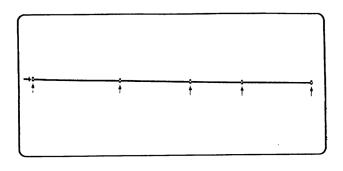
F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Commnd Bottom Escape is ON

يوجد بالسطر الأول العنوان وهو الركائز (Supports)

والسطرالثاني به رقم الركيزة (.No) الاولى والثانيه وهكذا ورقم نقطة المنشأ المناظرة لرقم الركيزه فمثلا 12 هي الركيزة رقم ١ وهكذا ثم مقاومةالركيزة فى الاتجاه الافقى (X restraint) والاتجاه الرأسى (Y Restraint) والدوران(A restraint) .

ندخل نوع الركائز طبقا الجدول التالي وكما بالرسم:

Support	NO	Jnt Pos	X Restraint	Y Restraint	A Restraint
Hinge	1	1	Full	Full	Zero
Roller	2	2	Zero	Full	Zero
Roller	3	3	Zero	Full	Zero
Roller	4	4	Zero	Full	Zero
Roller	5	5	Zero	Full	Zero



ونستخدم حرف (F) لتعريف (Full) و (Zero) لتعريف (Zero) فتظهر لنا الشاشة

Sup	ports							
No	Jnt	X Re	straiı	nt 3	Y Restrain	t AR	estraint	
	Pos	(KN	/mm	1)	(KN/mm) (KI	Vm/rad)	
1	. 1		Full		Full		Zero	
2	2		Zero)	Full		Zero	
3	3		Zero)	Full		Zero	
4	4		Zero)	Full		Zero	
5	5<		Zero)	Full		Zero	
Inp	out mo	de						
F1	F2	F6	F7	F8	F9	F10	ESC	NUMLOCK
Hel	p Calc	Тор	Up	Down	Commnd	Bottom	Escape	is ON

نستخدم مفاتيح الوظائف الموجودة في أسفل الشاشة لتعديل أي بيانات نضغط [ESC] للتسجيل فتظهر لنا الشاشة التالية :

Current job reference = BEAM.

47Kb Disk space free

- 0 End this job
- 1 Joint Positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load case name
- D Draw the Structure

يمكن الآن ابخال الاحمال المؤثرة علي الكمرة المستمرة نبدأ في ذلك كالاتي:

ـ نسمى كل الاهمال المتوقعة على المنشأ (Load case names) مثل الهمل الميت (Dead Load) والهي(Live Load) والعي(Dead Load) والعي

والسهواة نفرض ان العمل الموزع بانتظام على الكمرة المستمرة هو حمل ميت . (Dead Load)

١٢. نضغط [5] فتغلير الشاشة التالية :

Global load case names

No. load Case Name

1 Dead Load

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCk . Help Calc Top Up Down Commnd Bottom Escape is ON

يوجد بالسطر الأول العنوان وهو اسماء الاحمال المؤثرة علي المنشأ Global load). case names).

والسطر الثاني به اسم الحمل ورقمه (No., Load Case name) ويظهر دائما الحمل الميت (Dead Load) في السطر الثالث ولا يمكن اهماله .

نضغط [ESC] التسجيل والموافقة علي وجود الحمل الميت فقط . فتظهر الشاشة التالية:

Current job reference = BEAM

- 0 End this job
- 1 Joint Positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load Case names
- 6 Member loads
- 7 Joint loads
- D Draw the Structure

Key option required

F1 F2 Help Calc

NUMLOCK is On

لتعريف الأحمال المختلفة المؤثرة على الاعضاء نصغط [6] (6 Member Loads) .

لتعريف الأحمال المختلفة المؤثرة على نقاط المنشأ نضغط [7] (7 Joint Loads) .

ويلاحظ أن الحمل المؤثر علي الكمرة المستمرة من النوع الأول نضعفط [6] فتظهر الشاشة التالية:

MEMBER	LOADS
Mem	No. of
No.	Loads
1	0
2	0
3	0
4	0

Command mode

F1 F2 F3 F4 F7 F8 F9 F10 ESC NUMLOCK Help Calc Go to: Delete Up Down Input: Print: Escape is ON يوجد بالسطر الأول العنوان وهو الأحمال المؤثرة على الأعضاء (Mem No., No. of Loads) . السطرالثاني به رقم العضو وعدد الاحمال المؤثرة عليه (F9] . ندخل الاحمال باستخدام مفاتيح الوظائف الموجودة اسفل الشاشة نضغط (Input) فتظهر الشاشة التالية :

МЕМВЕ	ER LOADS	
Mem	No of	
No.	Loads	
1	0	
2	0	
3	0	
4	0	
Enter ap	plied loads and moments	
On whic	h Member ? 0	
(Press E	SC to escape)	
Fl	F2	NUMLOCK
Help	Calc	is ON

ويوجد سؤال في اسفل الشاشة وهو عن رقم العضو المطلوب تعريف الاحمال المؤثرة عليه . نبدأ بادخال الاحمال المؤثرة على العضو الأول (Member 1) .

ندخل رقم العضو وقيمته = ١ ثم نضغط [Enter] للادخال فتظهر الشاشة التالية :

MEMBER LOADS Loads & moments on Member 1 (length= 5.000m slope = 0.000deg)

Mem No.of Ld Load Case Start Loaded (KN, KN,m or KN/m) Load No Loads No. Number&name Type Pos(m) Len(m) Start val. End val 0 1 1 Dead Load UV 30,000 1 2 0 2 1 3 0

4 0

Transfer loads to other Members ? Y/N

يوجد بالسطر الأول العنوان وهر الاحمال المؤثرة علي الاعضاء (Member Loads) ويجد بالسطر الأول العنوان وهر الاحمال المؤثرة على العضو الأول (Loads & Moments on Momber) وكذلك والاحمال والعزوم المؤثرة على العضو الأول (Length = 5m, slope = 0.00 deg).

السطر الثانى به رقم العضور ثم عدد الاحمال المؤثرة عليه (No of Loads) ثم رقم الصل (Load case Number & name) وسبق تعريفها الحمل (Load case Number & name) وسبق تعريفها في الخطوة السابقة (Load Type) و الحمل (S Load case names) ولمول التحميل (Load Type) وقيمته عند النهاية الثانية (Load Length m) وهذات كيلو نيوتن ، متر ويجب الأولى (Start Val.) وعند النهاية الثانية (End Val.) بوحدات كيلو نيوتن ، متر ويجب مراجعة قواعد ادخال الاحمال جيدا الموجودة صفحة (60) .

نستخدم مفاتيح الوظائف المجودة في اسفل الشاشة لتعريف نوع الحمل الميت (Dead load) فمثلا نضغط [F3] (Point Load) لادخال حمل يؤثر في نقطة (Concentrated load) وعلى أي بعد من نهايته الاولى .

ولادخال عزم مؤثر في نقطة من العضو الاول وعلى أي بعد من نهايته الأولى نضغط [F4] (Moment) .

ولايخال وزن المتر الطولى من العضو الاول نضغط [F5] (Self wt) ولايخال حمل موزع يؤثر بانتظام (U.D.LD) [F6] نضغط (U.D.LD) .

ولادخال همل موزع (مثلث أو شبه منصرف) (Distrib. Load) نضغط ((مثلث أو شبه منصرف) (DISTRIB) [F7]

وبمراجعة الاحمال الميته المؤثرة علي الكمرة المستخدمة فالعضو الاول عليه ٣ طن /م موزعة بانتظام (U.D.ld) من النهاية الاولى (U.I) إلى النهاية الثانية (Ji2) .

وهناك ملاحظة هامة يعرف العمل المرزع بانتظام (U.D.LD) بانه يبدأ من النهاية الأولى وينتهى عند النهاية الثانية العضو وبنفس القيمة ولا يصح ان يؤثر علي جزء من العضو وإذا حدث ذلك يعرف الحمل بانه حمل موزع (Distrib) وليس موزع بانتظام من العضو وإذا حدث ذلك يعرف الحمل بانه حمل موزع (U.D.L) فنلاحظ ظهور حرف (U) وتعنى أن الحمل موزع بانتظام (U.D.L) ويستخدم [F3] لنتجاه الحمل بانه راسى (Vertical) أو [F4] للاتجاه الافقى أو [F5] للاتجاء العمودي على محور العضو (Normal) أو [F6] في اتجاه المحود (Axial)

وطبعا الحمل الموزع بانتظام على العضو الاول اتجاهه راسيا لاسفل أى موجب طبقا لقاعدة اشارات الاحمال الموضحة صفحة (٦٥) أو باستخدام شاشات المساعدة بالضغط على [F1] والعودة لشاشة الادخال باستخدام زر الهروب [ESC] .

ـ نضغط [F3] (Vertical) ونلاحظ ظهور حرف (V) وتعني حمل موزع بانتظام واتجاهه راسى .

 والآن تم انخال الحمل الميت (Dead Load) على العضو الاول.

ـ نضغط [ESC] للتسجيل فيظهر سؤال في اسفل الشاشة هل نوع وقيمة واتجاه الاحمال المؤثرة علي العضو الثاني مثل الاول فنجيب لا أي نضغط [N] فتظهر الشاشة التالية:

MEMB	ER LOADS
Mem	No.of Loads
1	1
2	0
3	0
4	0

Command mode

F1 F2 F3 F4 F7 F8 F9 F10 ESC NUMLOCK Help Calc Go to: Delete Up Down Input: Print: Escape is ON

نلاحط أن عد الاحمال المؤثرة على العضو الاول = ١ وهو الحمل الميت (Dead Load) بدلا من (منفر) قبل انخال هذا الحمل .

- نضغط [F9] (Input) الموجودة في اسفل الشاشة لادخال الاحمال على العضو الثاني حتى الرابع فتظهر الشاشات التالية تباعا :

```
        MEMBER LOADS Loads & moments on Member 2 (length= 4.000 slope=0.000deg)

        Mem
        No.of
        Ld.
        load case
        Load
        Start
        Loaded
        (KN,KN.m or KN/m)

        No
        Loads
        No.
        Number & name
        Type Pos(m) Len(m)
        Start val.
        End val.

        1
        1
        1
        Dead Load
        UV
        25.000

        2
        0
        2
        1

        3
        0
        4
        0
```

 MEMBER LOADS Loads & moments on Member 3 (length= 3.000 slope=0.000deg)

 Mem
 No. of
 Ld.
 load case
 Load
 Start
 Loaded
 (KN,KN.m or KN/m)

 No
 Loads
 No.
 Number & name
 Type
 Pos(m) Len(m)
 Start val.
 End val.

 1
 1
 1
 Dead Load
 UV
 20.000

 2
 1
 2
 1

 3
 0

 4
 0

 MEMBER LOADS Loads & moments on Member 4 (length = 4:000 slope=0.000deg)

 Mem
 No.0f
 Ld.
 load case
 Load
 Start
 Loaded
 (KN,KN.m or KN/m)

 No
 Loads
 No.
 Number & name
 Type Pos(m) Len(m)
 Start val.
 End val.

 1
 1
 1
 Dead Load
 UV
 25.000

 2
 1
 2
 1

 3
 1
 4
 0

Current job reference = BEAM

64Kb Disk space free

- 0 End this job
- 1 Joint positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load case names
- 6 Member loads
- 7 Joint loads
- 8 Combinations
- D Draw the Structure

ولادخال أي أحمال تؤثر علي نقاط المنشأ (Joint Loads) نضغط [7] ويمكن تخطى هذه الخطوة لعدم وجود تلك الأحمال في المثال الحالي .

واتعريف حالات التحميل المكونة من الحمل الميت والحي واحمال الرياح . . . الخ .

١٤ نضغط [8] فتظهر الشاشة التالية :

Safety Factors for combination

Load Case Safety

Number and name factor

Enter no. of combinations - max = 428

How many? O<

(Press ESC to escape)

F1 F2 NUMLOCK

Help Calc is ON

يوجد بالسطر الأول العنوان وهو عامل الامان لحالة التحميل Safety Factors For().

Combination)

السطر الثانى به رقم الحمل واسمه (Load Case number and name) وعامل الامان (Safety Factor) .

وفى اسفل الشاشة تظهر عدد حالات التحميل المكنة الكمرة المستمرة وهي ٤٢٨ حالة والسهولة نفترض حالة واحدة وهي الحمل الميت فقط (Dead Load) ومضروبا في عامل أمان = ١ .

نكتب [١] ثم نضغط [Enter] للإدخال فيظهر اسم الحمل الميت (Dead Load) ندخل عامل الامان = ١ ثم نضغط [Enter] للإدخال كما بالشاشة التالية :

Safety Factors for combination 1 Load Case Safety

Number and name factor

Dead Load 1.000

نضغط (ESC) للتسجيل فتظهر الشاشة التالية :

Current job reference = BEAM 45.5K Disk space free

- 0 End this job
- 1 Joint Positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load case names
- 6 Member Loads
- 7 Joint loads

- 8 Combinations
- 9 Analysis / Results
- D Draw the Structure

وأخيرا تم ادخال كل بيانات المنشأ وهي الابعاد والنقاط والاعضاء والقطاعات والاحمال وحالات التحميل المختلفة والآن يمكن الدء في حل الكمرة.

نضغط [9] فتظهر الشاشة التالية :

Current job reference = BEAM 54.5K Disk space free

- 0 End this job
- 1 Revise data
- 2 View results on screen
- 3 Print input data and results
- D Draw the structure

(NB: Calculations not yet done)

- لانهاء المنشأ بدون حل نضغط [صفر] (End this job)
 - ـ العودة لبيانات المنشأ نضغط [١] (Revise data)
- ـ البدء في حل المنشأ وإظهار النتائج على الشاشة نضغط [٢]
- (2 View Results on Screen)
- لطباعة بيانات ونتائج المنشأ على الطابعة بعد الحل نضغط [7] (3 Print input data and results)
 - ـ ارسم المنشأ نضغط [D] (D Draw the structure .
- والسطرا لأخير يوضع ان الحسابات الانشائية للكمرة لم تبدأ بعد (Calculations not yet done)
 - ١٥- نضغط [٢] للبدء في الحل فتظهر خطوات الحل على الشاشة :

```
Final stiffnes calculations for member (1)

" " " " " " " (2)

" " " " " " (3)

" " " " " (2)

Loading data for member (1)

" " " " (2)

" " " " (3)

" " " (4)

Calculating result for member (1)

" " " " (2)

" " " " (3)

" " " (3)

" " " (4)
```

ثم في النهاية تظهرالشاشة التالية :

Current job reference = BEAM

- 0 Exit to main menu
- 1 Results (L/4)
- 2 Summary of Maxima
- 3 Joint Displacements and Reactions
- 4 Summations of Forces and Moments
- D Draw the structure, Deflections, Moments & Forces

- تظهر بيانات بنتائج المنشأ كالآتي :

Joint	positions		
Jt.	X coord	Y	coord
No.	(m)		(m)
1	0.000		0.000
2	5.000		0.000
3	9.000		0.000
4	12.000		0.000
5	16.000		0.000

	lp	F2 Cal	c		Top		F7 Up	P8 Dow		F10 Bottom	ESC Escape		NUMLOCK is ON
Mem	Jl.	Jnt		and fi		Coord			X2 Coord	Y2 Coc		ength	Slope
No.	no.	con		(m)		(m)		con	(m)	(m)		(m)	(deg)
1	1	F		0.000		0.000	2		5.000	0.0		5.000	0.000
2	2	F		5.000		0.000	3	F	9.000	0.0		4.000	0.000
3	3	F		9.000		0.000	4	F	12.000	0.0	000	3.000	0.000
4	4	F		12.000		0.000	5	F	16.000	0.0	000	4.000	0.000
5													

Input mode

Fl	F2	F6		F8 F9	F10	ESC	NUMLOCK
Help	Calc	Top		Own Comm	nd Bottom	Escape	is ON
Table of Section No.	of Sections n Area (cm2) 1000.000	Inertia (cm4) 133333.33	No. of Elements 0				

F1 Help	F2 Calc	F6 Top		re own C	F9 ommnd	F10 Bottom	Esca Esca		NUMLOCK is ON
Table o	of Sections			Memb	er Se	ction P	rope	rties	
Section) Area	Inertia	No. of	Mem	Mem	ber	No.	Sec.	Modulus E
No.	(cm2)	(cm4)	Elements	No.	Len	gth N/P	Seg	No.	(N/mm2)
1	1000.000	133333.33	0	1	5	.000 P	ī	1	21000.000
2				2	4	.000 P	1	1	21000.000
_				3	3	.000 P	1	1	21000.000
				4	4	.000 P	1	1	21000.000

Input mode

	F1 elp		F2 alc	F6 Top	F7 Up	P8 Down	F9 Command	F10 Bottom	ESC Escape	NUMLOCK is ON
Sup	ports									
No.	Jnt	X	Restraint	Y Rest	raint	A Restr	aint			
	Pos		(kN/mm)	(kN/	mm)	(kNm/r	ad)			
1	1<		PULL		PULL		ZERO			
2	2		ZERO		FULL		ZERO			
3	3		2ERO		PULL		ZERO			
4	4		ZERO		FULL		ZERO			
5	5		ZERO		FULL		ZERO			

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Commnd Bottom Escape is ON

Global load case names

No. Load Case Name
1 Dead Load
2

Input mode

F1	F2		F6	F7	F8	F9	F10	ESC	NUMLOCK
Hel	p Calc		Top	Up	Down	Commad	Bottom	Escape	is ON
MEMBE	R LOADS	Load	s & mome	nts on	Member 1	(lengt	h = 5.0	00m slop	e = 0.000deq)
Mem	No.of	Ld.	Load ca	se	Load	Start	Loaded	l (kN,	kN.m or kN/m)
No.	Loads	No.	Number	& name	Type	Pos(m)	Len(m)	Start v	al. End val.
1	1	1	1<	Dead	Load UV			30.	
2	1	2							
3	1								
4	1								

Input mode

Fl F2 Help Calc		F8 F9 F10 ESC o⊌n Commnd Bottom Escape	NUMLOCK is on
MEMBER LOADS Hem No.of No. Loads 1 1 1 2 1 3 1 4 1	Ld. Load case	er 2 (length = 4.000m slope Load Start Loaded (kN. kM Type Pos(m) Len(m) Start val d UV	.m or kN/m) . End val.
	Input mode		
F1 F2 Help Calc	Top Up D	F8 F9 F10 ESC own Command Bottom Escape er 3 (length = 3,000m slope	NUMLOCK is ON

MEMBER LOADS Loads & moments on Member 3 (length = 3.000m slope = 0.000deg)

Mem No.of Ld. Load case Load Start Loaded (kN, kN.m or kN/m)

No. Loads No. Number & name Type Pos(m) Len(m) Start val. End val.

1 1 1 Dead Load UV 20.000

3 1 4 1

Input mode

F1 F2 F6 F8 F9 F10 ESC Down Command Bottom Escape F7 NUMLOCK Calc Top Üр is ON MEMBER LOADS Mem No.of No. Loads 1 1 ž

3 1 4 1

Input mode

Input mode

		2 lc	F6 Top	F7 Up	F8 Down	F9 Commad	F10 Bottom	ESC Escape	:	NUMLOCK is ON
*									JOB :	BEAM
:			:						DATE:	
:					INP	UT	DATA	•	SHEET:	1
	ANALYSE	(C)Copyrigh	t Comput	er and	Desig	n Servi	ces Lim	ited 19	85	
PDA	ME CEOME	TDV								========

No? of Joints = 5

MEMBERS

:-		End Detail	s	- End 2 Details	:	:-	
No.:n	0.: :	(m) :	(m) :no.:	: X Coord : Y : (m) :	(m) :	(m) :	(deg)
				:			
1:	1:F:	0.000 :	0.000 : 2:F	: 5.000:	0.000 :	5.000 :	0.00
2:	2:F:	5.000 :	0.000 : 3:F	: 9.000 :	0.000 :	4.000 :	0.00
3:	3:F:	9.000 :	0.000 : 4:F	: 12.000 :	0.000 :	3.000 :	0.00
4:	4:F:	12.000 :	0.000 : 5:F	: 16.000 :	0.000 :	4.000 :	0.00

TABLE OF SECTIONS

Section	:	Area:	Inertia:	Rec	tangular	Eleme	ents	(if	specified)
Number		(cm2):			D (mm)				Y (mm)
	-:-	:	:	:		:		:	
1		1000 00-	122222 2-						

SUMMARY OF MEMBER PROPERTIES

Member 1 - 4 PRISMATIC : Section Number 1 : Modulus E = 21000.0 N/mm2

No. of Supports = 5

Joint Number							Angular Restraint (kN.m/radian)
	٠:-			:		٠.	
1	:		FULL	:	FULL	:	ZERO
2	:		ZERO	:	FULL	:	ZERO
3	:		ZERO	:	FULL	:	ZERO
4	:		ZERO	:	FULL	:	ZERO
5	:		ZERO	:	FULL	÷	ZERO
23FE488		===	**********	===		=	

APPLIED LOADS AND MOMENTS

MEMBER 1

LOAD CASE No:Name				OAD/MOMEN Start Value:	T End Value
:	::	:	:	::	
1: Dead Loa	id: UV :		:	30.000 kN/m:	

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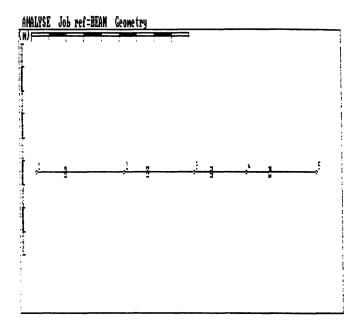
APPLIED LOADS AND MOMENTS continued
MEMBER 2
LOAD CASE :LOAD: POSITION : LOAD / MOMENT No: Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV : : : 25.000 kN/m:
MEMBER 3
LOAD CASE :LOAD: POSITION : LOAD/MOMENT No: Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV : : : 20.000 kN/m:
MEMBER 4
LOAD CASE :LOAD: POSITION : LOAD/MOMENT No: Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV: : : 25.000 kN/m:
COMBINATIONS
: TABULATED VALUES OF PARTIAL SAFETY PACTORS L O A D C A S E : Combination Number : 1
1: Dead Load:1.000

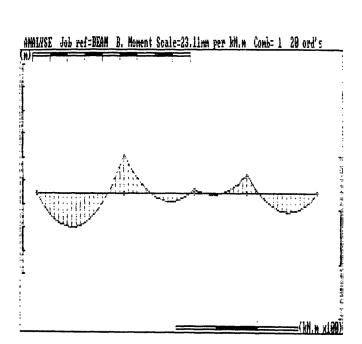
* JOB : BEAM

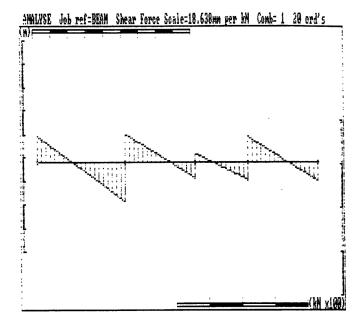
JOB . BEAR

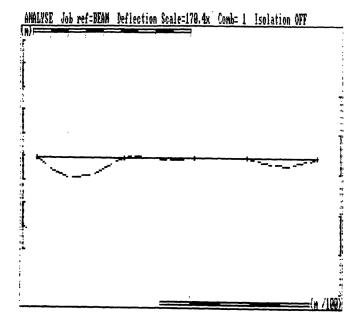
•		:-				* DATE:	
		:	A N A T. V	STS PES	п т. т s	*SHEET:	
·		•					·
		yright Compute					
RESULTS FOR							
Joint Displ	acemen	ts and Reactio	ons				
Joint No.	dx (mm) dy(mm) 0 0.00 0 0.00 0 0.00 0 0.00 0 0.00	0(rad)	Px (kN)	Py (kN) M	(kN.m)
1	0.0	0.00	-0.0034	0.000	60.	578	0.000
2	0.0	0.00	0.0013	0.000	154.	981	0.000
3	0.0	0.00	0.0002	0.000	55.	701	0.000
5	0.0	0 0.00	0.0015	0.000	40.	975	0.000
		es and Moments					
		Px (kN)	Py (kN)	Mo (kN.m)			
Member Load	s	0.000	-410.000	-3105.000			
Joint Loads		Px (kN) 0.000 0.000	0.000	0.000			
Reactions		0.000	-410.000	-3105.000			
Summation		0.000	410.000	3105.000			
Summation		0.000	0.000	0.000			
Maxima for							
Load Shear	(kN)	Maximum Ax	ial (kN)	< Bend	ing Mome	ent (kN.m)	
Comb. (Abs.	. Max.) .R9.422	(Compression)	(Tension)	Max.+ve Po	2.019	Maxve -72.111	Pos. (m
-		0.000					
Maxima for	· (kN)	Maximum Av	ial (kN)	< Rend	ing Mome	ent (kN m)	
Maxima for Load Shear	(kN)	Maximum Ax: (Compression)	ial (kN) (Tension)	< Bend	ling Mome	nt (kN.m) Maxve	Pos. (m
Maxima for Load Shear Comb. (Abs.	. Max.)	(Compression)	(Tension)	Max.+ve Po	s. (m)	Maxve	Pos. (m
Maxima for Load Shear Comb. (Abs.	Max.) 65.559	(Compression) 0.000	(Tension)	Max.+ve Po	s. (m)	Maxve	Pos. (m
Maxima for Load Shear Comb. (Abs. 1	Max.) 65.559 Member	(Compression) 0.000	(Tension) 0.000	Max.+ve Po 13.848	os. (m) 2.622	Maxve -72.111	Pos. (m 0.00
Maxima for Load Shear Comb. (Abs. 1 Maxima for Load Shear	Max.) 65.559 Member	(Compression) 0.000 3 Maximum Ax	(Tension) 0.000	Max.+ve Po 13.848	os. (m) 2.622	Maxve -72.111	Pos. (m 0.00
Maxima for Load Shear Comb. (Abs. 1 Maxima for Load Shear Comb. (Abs.	Max.) 65.559 Member (kN) Max.)	(Compression) 0.000 3 Maximum Ax (Compression)	(Tension) 0.000 ial (kN) (Tension)	Max.+ve Po 13.848 	os. (m) 2.622 	Maxve -72.111 ent (kN.m) Maxve	Pos. (m 0.00
Maxima for Load Shear Comb. (Abs. 1 Maxima for Load Shear Comb. (Abs.	Max.) 65.559 Member (kN) Max.)	(Compression) 0.000 3 Maximum Ax (Compression) 0.000	(Tension) 0.000 ial (kN) (Tension)	Max.+ve Po 13.848 	os. (m) 2.622 	Maxve -72.111 ent (kN.m) Maxve	Pos. (m 0.00
Maxima for Load Shear Comb. (Abs. 1 Maxima for Load Shear Comb. (Abs. 1 Maxima for	Max.) 65.559 Member (kN) Max.) -38.741	(Compression) 0.000 3 Maximum Ax (Compression) 0.000	(Tension) 0.000 ial (kN) (Tension) 0.000	Max.+ve Po 13.848 	2.622 2.622 ding Mome 0s. (m) 1.063	Maxve -72.111 ent (kN.m) Maxve -36.098	Pos. (m 3.00
Maxima for Load Shear Comb. (Abs. 1 Maxima for Load Shear Comb. (Abs. 1 Maxima for Load Shear Load Shear Comb. (Abs.	Max.) 65.559 Hember (kN) Max.) -38.741 Hember	(Compression) 0.000 3 Maximum Ax (Compression) 0.000	(Tension) 0.000 ial (kN) (Tension) 0.000 ial (kN)	Max.+ve Pc 13.848	2.622 ling Mome bs. (m) 1.063	Maxve -72.111 	Pos. (m 0.00

			_						* JOB : I	BEAM
			•						* DATE:	
			. A N	A I. V	S T S	RES	п т.	2 3	*SHEET:	
		opyright Comp								
ESULTS	FOR COM	BINATION 1	MEMBER	1						
Positi	ion (m)	Shear Force (kN) -89.422 -51.922 -14.422 23.078 60.578	Axial	Comp.	Bend.	Moment		dх	dy	Slope
from	n End 1	(kN)		(kN)		(KN.m)	(mun)	(mm)	(deg)
t. Z	5.000	-89.422		0.000	-	16 770		0.0	0.0	0.074
. / 3 L	3.750	-31.922		0.000		10.229		0.0	-2.7	0.135
257	2.300	-14.422		0.000		57.093			-4.7	0.031
.25L	1.250	23.078		0.000		32.283		0.0	-3.7	-0.120
aximum aximum	+ve Ben	ding Moment ding Moment	61 -72	.161 ki	i.m at	2.0	19m f	rom	joint 1 joint 1	
		BINATION 1								
Posi+	ion (m)	Shear Force (kN) -34.441 -9.441 15.559 40.559 65.559	Axial	Comp.	Bend.	Moment		d۶	du	Slone
from	m Fnd)	/ ku	witar	(kN)	ociia.	(kN.m)	. ,	mm 1	/mmi	(deg)
+ 3	4 000	-34 441		0.000		-9 976	١,	0 0	(11411)	0.011
757	3 000	-9 441		0.000		12 066		n . o	0.0	0.011
501	3.000	15 550		0.000		9 003	;		-0.2	0.003
257	1 000	10.559		0.000		10 052	,		0.0	-0.021
t. 2	0.000	65.559		0.000		-72.111	i	0.0	0.0	0.074
							•			
	+ Ba-	ding Moment	12	040 L					4-4 3	
Maximum Maximum	+ve Ber	ding Moment ding Moment	13 -72	.848 kt	N.m at N.m at	2.6	522m f 000m f	rom	joint 2 joint 2	
RESULTS	FOR COM	BINATION 1	HEMBER	3		2.6 0.0	522m f 000m f			
RESULTS	FOR COM	BINATION 1	HEMBER	3		2.6 0.0	522m f 000m f			
RESULTS	FOR COM	BINATION 1	HEMBER	3		2.6 0.0	522m f 000m f			
RESULTS	FOR COM	BINATION 1	HEMBER	3		2.6 0.0	522m f 000m f			
RESULTS	FOR COM	BINATION 1	HEMBER	3		2.6 0.0	522m f 000m f			
RESULTS	FOR COM	BINATION 1	HEMBER	3		2.6 0.0	522m f 000m f			
RESULTS	FOR COM	BINATION 1	HEMBER	3		2.6 0.0	522m f 000m f			
RESULTS	FOR COM	BINATION 1	HEMBER	3		2.6 0.0	522m f 000m f			
Posit from Jt. 4 0.75L 0.50L 0.25L Jt. 3	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	Shear Force (kn) -38.741 -23.741 -8.741 6.259 21.259	HEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000	Bend.	2.6 0.0 (kN.m) -36.098 -12.667 -0.487	522m f 000m f t) (3 7 7	dx mm) 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1	Slope (deg) -0.038 -0.002 0.007 0.005
Posit from Jt. 4 0.75L 0.50L 0.25L Jt. 3	FOR COM- ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ber	BINATION 1	HEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Bend	2.6 0.0 (kN.m) -36.098 -12.667 -0.487 0.444 -9.876	522m f 000m f 1000m f 1000m f 1000m f	dx mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0	Slope (deg) -0.038 -0.002 0.007 0.005
POSIT FOSIT Jt. 4 0.75L 0.50L 0.25L Jt. 3 Maximum Maximum	FOR CON- ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ber -ve Ber	Shear Force (kN) -38.741 -23.741 -8.741 6.259 21.259 ading Moment ding Moment	MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Bend	2.6 0.0 (kN.m) -36.098 -12.667 -0.487 -3.876	522m f 000m f 000m f 000m f	dx mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011
POSIT FOSIT Jt. 4 0.75L 0.50L 0.25L Jt. 3 Maximum Maximum	FOR CON- ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ber -ve Ber	Shear Force (kN) -38.741 -23.741 -8.741 6.259 21.259 ading Moment ding Moment	MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Bend	2.6 0.0 (kN.m) -36.098 -12.667 -0.487 -3.876	522m f 000m f 000m f 000m f	dx mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011
POSIT FOSIT Jt. 4 0.75L 0.50L 0.25L Jt. 3 Maximum Maximum	FOR CON- ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ber -ve Ber	Shear Force (kN) -38.741 -23.741 -8.741 6.259 21.259 ading Moment ding Moment	MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Bend	2.6 0.0 (kN.m) -36.098 -12.667 -0.487 -3.876	522m f 000m f 000m f 000m f	dx mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011
POSIT FOSIT Jt. 4 0.75L 0.50L 0.25L Jt. 3 Maximum Maximum	FOR CON- ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ber -ve Ber	Shear Force (kN) -38.741 -23.741 -8.741 6.259 21.259 ading Moment ding Moment	MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Bend	2.6 0.0 (kN.m) -36.098 -12.667 -0.487 -3.876	522m f 000m f 000m f 000m f	dx mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011
POSIT FOSIT Jt. 4 0.75L 0.50L 0.25L Jt. 3 Maximum Maximum	FOR CON- ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ber -ve Ber	Shear Force (kN) -38.741 -23.741 -8.741 6.259 21.259 ading Moment ding Moment	MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Bend	2.6 0.0 (kN.m) -36.098 -12.667 -0.487 -3.876	522m f 000m f 000m f 000m f	dx mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011
POSIT FOSIT (11. 4 (1).75L (1).50L (1).25L (1).3 (4).25L (1).3	FOR CON- ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ber -ve Ber	Shear Force (kN) -38.741 -23.741 -8.741 6.259 21.259 ading Moment ding Moment	MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Bend	2.6 0.0 (kN.m) -36.098 -12.667 -0.487 -3.876	522m f 000m f 000m f 000m f	dx mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011
Posit from 1.75L 0.50L 0.25L 0.75L 0.05L	FOR COM- ion (m) m End 1 3.000 2.250 0.750 0.000 i+ve Ber 	BINATION 1 Shear Force (kN) -38.741 -23.741 -8.741 6.259 21.259 adding Moment dding Moment dSINATION 1 Shear Force (kN) -40.975 -15.375 9.025 34.025	Axial -36 MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000 423 kt .098 kt 4 Comp. (kN) 0.000 0.000 0.000	Bend.	2.6 0.0 (kN.m) -36.098 -12.667 0.444 -9.876 1.6 3.6 (kN.m) 0.006 28.477 31.95;	522m f 000m f 1000m f 1000m f 1000m f 1000m f	dx mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011
Posit from 1.75L Posit from 1.75L Posit Posit from 1.75L	FOR COM ion (m) m End 1 3-000 2-250 0-750 0-000 1-ve Ber -ve Ber i FOR COM ion (m) m End 1 4-000 3-000 2-000 0-000	BINATION 1 Shear Force (km) -38.741 -31.741 -8.741 6.259 21.259 adding Moment adding Moment (km) -40.975 -9.025 59.025	Axial 1 -36 MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000 423 kt .098 kt 4 Comp. (kN) 0.000 0.000 0.000	Bend N.m at N.m at	2.6 0.0 (kN.m) -36.098 -12.667 -0.448 -9.876 1.6 3.6 (kN.m) 0.000 (kN.m) 0.000 28.479 31.955	522m f 5000m f 5000m f 6000m f 60000m f 60000m f	dx mm) 0.0 0.0 0.0 0.0 0.0 from mm) 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011 Slope (deg) 0.087 0.054 -0.012
Posit from 1.75L From	FOR COM ion (m) m End 1 3-000 2-250 0-750 0-000 1-ve Ber -ve Ber i FOR COM ion (m) m End 1 4-000 3-000 2-000 0-000	BINATION 1 Shear Force (kN) -38.741 -23.741 -8.741 6.259 21.259 adding Moment dding Moment dSINATION 1 Shear Force (kN) -40.975 -15.375 9.025 34.025	Axial 1 -36 MEMBER Axial	3 Comp. (kN) 0.000 0.000 0.000 0.000 0.000 423 kt .098 kt 4 Comp. (kN) 0.000 0.000 0.000	Bend N.m at N.m at	2.6 0.0 (kN.m) -36.098 -12.667 -0.448 -9.876 1.6 3.6 (kN.m) 0.000 (kN.m) 0.000 28.479 31.955	522m f 5000m f 5000m f 6000m f 60000m f 60000m f	dx mm) 0.0 0.0 0.0 0.0 0.0 from mm) 0.0 0.0 0.0	dy (mm) 0.0 0.2 0.2 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Slope (deg) -0.038 -0.002 0.007 0.005 0.011 Slope (deg) 0.087 0.054 -0.012









بعد الانتهاء من حل الكمرة المستمرة وعليها حمل ميت فقط سنعيدالحل باضافة حمل حمل وتعديل ابعاد الكمرة والاحمال المؤثرة عليها وذلك باستخدام شاشة (Disk utilities) - نضغط [۲] فتظهرالشاشة التالية:

- O Exit from Utilities
- 1 Format a New data disk
- 2 Rename a previous job
- 3 Duplicate a previous job
- 4 Delete Selected jobs
- 5 Transfer Selected Jobs from the Fixed disk to a Floppy Data Disk
- 6 Copy Selected Jobs from a Floppy Data Disk to the Fixed Disk

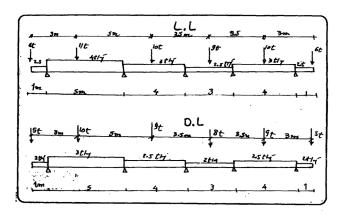
نضغط [٣] مرة أخري لننشئ نسخة أخري من الكمرة الستمرة (3 Duplicate a previous job)

وندخل رقم الكمرة المستمرة (Beam) في قائمة المنشأت المرجودة بالشاشة وهو (١) مثلا .

نكتب \ ثم نضغط [Enter] للإدخال .

يظَهْر الْمُؤشر في اسْفل الشاشة جهة اليمين لادخال الاسم الجديد النسخة الأخرى من الكمرة المستمرة وليكن (Beam 1) ثم نضغط [Enter] للادخال وسنجرى بعض التعديلات على الكمرة المستمرة وهي :

- ١- اضافة كابولي من الجهتين .
- ٢- تغير الاحمال الميته (Dead load) كما بالرسم .
 - ٢ـ اضافة احمال حية (Live load) كما بالرسم .
 - 1- تعديل قطاع الكمرة وليكن T-sec .



نضقط [۲] لاستدعاء منشا تم الخال بياناته وسنجرى بعض التعديلات عليه فتظهر الشاشة التالية:

List of Jobs on disk 29.5Kb Disk space free

Job 1 - BEAM
Job 2 - BEAM1

Continue Previous Job
Which Job No. 2 <

نجيب على السؤال الموجود اسفل الشاشة برقم المنشأ المطلوب تعديله وهو (Beaml) ورقمه [٢] . فتظهر الشاشة التالية :

Current job reference = BEAM1

- 0 Exit from this job
- 1 Revise job data
- 2 Analysis / Results
- D Draw the structure, Deflections, moments & forces

ـ نضغط [١] لاستدعاء بيانات المنشأ والتعديل فيها (Revise job data) فتظهر الشاشة التالية:

Current job reference = BEAMI

- 0 End this job
- 1 Joint positions
- 2 Member locations & fixity
- 3 Properties
- 4 Supports
- 5 Load case names
- 6 Member loads
- 7 Joint loads
- 8 Combinations
- 9 Analysis / Results
- D Draw the structure

ولاضافة الكابولي من الجهتين نضيف النقطتين ٦ ، ٧ لنقاط المنشأ واحداثياتهما كالاتي:

Jt	x	у
6	-1	0
7	17	0

ـ نضغط [١] نقاط المنشأ (I Joint positions)

- نضغط [F10] الوصول إلى النقطة رقم (٦) وندخل احداثياتها ونكرر ذلك مع النقطة [V] فتصبح الشاشة بالصورة التالية:

Joint positi	ions
Jt X coo	ord Y coord
No. (m)	(m)
1 0.000	0.000
2 5.000	0.000
3 9.000	0.000
4 12.000	0.000
5 16.000	0.000
6 -1.000	0.000
7 17.000	0.000
8 0.000	

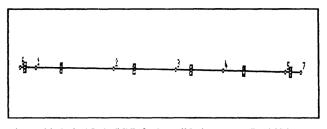
نضغط [ESC] للتسجيل ونضغط [٢] لاضافة الاعضاء [٥] ، [٦] كالاتي:

Member	E1	Jt. con	E2	Jt.con
5	6	F	1	F
6	5	F	7	F

نضغط [F10] للوصول إلى العضورةم [٥] ندخل البيانات كما بالجدول ونكرر ذلك العضورةم [٦] فتصبح الشاشة بالصورة التالية :

Me	mbe	r lo	cation ar	nd fixity						
Mer	n J1	. Jnt	X1Coord	Y1Coord	J2.	Jnt X	2Coord Y	2Coord	Length	Slope
No	no.	con	(m)	(m)	no.	con	(m)	(m)	(m)	(deg)
1	1	F	0.000	0.000	2	F	5.000	0.000	5.000	0.000
2	2	F	5.000	0.000	3	F	9.000	0.000	4.000	0.000
3	3	F	9.000	0.000	4	F	12.000	0.000	3.000	0.000
4	4	F	12.000	0.000	5	F	16.000	0.000	4.000	0.000
5	6	F	-1.000	0.000	1	F	0.000	0.000	1.000	0.000
6	5	F	16.000	0.000	7	F	17.000	0.000	1.000	0.000
7	0									

نضغط [ESC] التسجيل والتأكد من صحة احداثيات النقط المضافة [3] ، [٧] التأكد من ضغط [D] (Number) [F4] التأكد من صحة ترقيم نقاط واعضاء الكمرة بعد التعديل ثم [F5] (Both) فتظهر الشاشة الثالية :



نضغط [ESC] للخروج من شاشة الرسومات ثم [Y] للمواقة على انهائها للاستمرار فى ادخال البيانات نضغط [١] ثم [٣] لتعديل قطاع الكمرة إلى T-Sec بدلا من مستطيل ابعاده ٢٥ سم × ٤٠ سم . نضغط (F9) (Command) ثم (Sections) ثم (Sections) ثم بيتحرك المؤشر لاعلى بالضغط على الضغط على (Command) [F9] نضغط (Top) [F6] ثم (Command) لانخال بيانات عناصر (Section) كما بالجدول:

Element No	Y	В	D
1	100	1000	200
2	-250	250	500

نضغط [Enter] للإدخال ثم [Esc] لتسجيل عنامس القطاع (١) فتظهرالشاشة التالية:

Table o	f Section	ns Men	nber Se	ctio	n Pı	operties				
Section	Area	Inertia	No.of	Me	m	Member		No.	Sec	Modulus E
No	(cm2)	(cm4)	Elemen	nts	No.	Length	N/P	Seg	No.	(N.mm2)
1 10	000.000	133333.3	3 0		1	5.000	P	1	1	21000.000
2	0.000				2	4.000	P	1	1	21000.000
					3	3.000	P	1	1	21000.00
					4	4.000	P	1	1	21000.000
					5	1.000	P			

Elements of Section no . 1

Elem Y-dim B-dim D-dim

No. (mm) (mm) No Section properties for Member 5

1 100.000 1000.000 200.000

2 -250.000 250.000 500.000

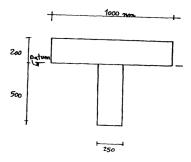
3 0.000<

ثم الشاشة التالية :

Table of Section							
Section Area Inertia	No. of	Mer	n Membe	:F	No.	Sec.	Modulus E
No. (cm2) (cm4)	Elements	No.	Length	N/p	Seg	No.	(N/mm2)
1 3250.000 1269391	.03 2	1	5.000	P	1	1	21000.000
2 0.000		2	4.000	P	1	1	21000.000
		3	3.000	P	1	1	21000.000
		4	4.000	P	1	1	21000.000
		5	1.000	P	1	1	21000.000
		6	1.000	P	1	1	21000.000

ويلاحظ أن المساحة أصبحت ٣٢٥٠ سم٢ وعزم القصورالذاتي ١٣٦٩٣٩ سم٤ والقطاع مكون من عنصرين (No of Elements = 2) .

 نضغط [F9] ثم [F6] للإنتقال إلى خصائص قطاع الكمرة في الجزء الاعلى من الشاشة جهة اليمين.



- * نضغط [F6] لتحريك المؤشر إلى قمة البيانات .
- * نضغط [Enter] عدة مرات لان الاعضاء لها نفس رقم القطاع وهو (١) في جدول القطاعات (Table of sections) .
 - * نضيف قطاع العضوين رقم ٥ ، ١وهو قطاع رقم (١) ايضا .
 - * نضغط [ESC] التسجيل فتظهر الشاشة الرئيسية كما سبق .
 - * ويلاحظ لايوجد أي تعديل في الركائز Supports .
- * نضغط [٥] اسماء الاحمال (Load case names) لاضافة الحمل الحي (Live load) النضافة الحمل الحي (Live Ld1) المؤثر على كمل عضو علي حدة فمثلا العضو الأول عليه (Live Ld1) ... والثاني (Live Ld2) ... والثاني (Live Ld2) ...

No. Load Case Name 1 Dead Load 2 Live Load 1 3 Live Load 2 4 Live Load 3 5 Live Load 4 6 Live Load 5 7 Live Load 6 8

- * نضغط [ESC] للتسجيل والعودة للشاشة الرئيسية ،
- * نضغط [٦] الاحمال المؤثرة علي اعضاء المنشأ (6 Member Loads) فتظهر الشاشة التالة:

MEMBER LOADS

Mem No. of

No. Loads

1

2

3

4

5 (

6 0

نضغط [F9] (Input) المرجودة في أسفل الشاشة ونعدل بيانات العضو رقم (١)
 كالاتي:

* نضغط (Down) [F8] ونضيف الأحمال التالية :

Ld. No	Load case number & name	Ld type	Stant pos	loaded len	Start val	End val
2	1 Dead load	PV	2		100	
3	2 Live load 1	UV			40	
4	2 Live load 1	PV	2		110	

- * ويالحظ ان البعد ٢ متر من النهاية الاولى (E1) للعضو الاول .
- نضغط [ESC] التسجيل ثم (N) لعدم نقل تلك الاحمال لاى عضو آخر . فتظهر الشاشة التالية :

```
MEMBER LOADS Loads & moments on Member 1 (length=5.000m slope = 0.000deg)
Mem No.of Ld Load case
                            Load
                                  Start Loaded (KN, KN.m or KN/m)
No. Loads No. Number & name Type Pos(m) Len(m) Start val. End val.
          1
                1
                  Dead Load UV
                                               30.000
2
          2
               1 Dead Load PV
                                   2.000
                                              100.000
3 1 3
               2 Live Load1 UV
                                               40,000
4 1 4 2 Live Load 1 PV 2.000
                                              110.000
5
         5
     0
               2
     0
```

Transfer loads to other Mmebers? Y/N

* نضغط [F9] (input) وندخل بيانات العضو الثاني وهي :

MEM	BER L	OADS L	ads &	moments on Me	mber 2	(length	=4.000m slope = 0.000deg)
Mem	No.of	Ld Load	case	Load St	art Load	iled ((KN, KN.m or KN/m)
No. I	Loads	No. Numi	ber & r	ame Type P	os(m)	Len(n	ı) Start val. End val.
1	4	1	l	Dead Load	UV		25.000
2	1	2	1	Dead Load	PV	2.000	90.000
3	1	3	3	Live Load 2	2 UV		30.000
4	1	4	3	live Load 2	PV	2.000	100.000
5	0	5	3<				
6	0						

^{*} نضغط [ESC] التسجيل ثم [N] لعدم نقل تلك الاحمال لاي عضو أخر.

^{*} نضغط [F9] (Input) وندخل بيانات العضو الثالث وهي :

ME	MBER L	OAD	S Loads &	moments on Me	mber 3	(length=3.000m	slope = 0.0	00deg)
Men	n No.of	Ld	Load case	1	Load	Start Loaded (K	N, KN.m o	r KN/m)
No.	Loads	No.	Number &	name	Туре	Pos(m) Len(m)	Start val.	End val.
1	4	1	1	Dead Load	$\mathbf{U}\mathbf{V}$		20.000	
2	4	2	1	Dead Load	PV	1.500	80.000	
3	1	3	4	Live Load3	UV		25.000	
4	1	4	4	Live Load3	PV	1.500	90.000	
5	0	5	4					
6	0							

- * نضغط (ESc) ثم (N) لزوم نقل تلك الأحمال لأى عضو آخر
 - * نضغط [F9] (Input) وندخل بيانات العضو الرابع وهي :

Mei	m No.o	f Ld	Load case		Loa	d St	art Loaded	(KN, KN.m	or KN/n
No.	Loads	No.	Number &	name	Тур	e Po	os(m) Len(n) Start val.	End val
1	4	1	1	Dead Loa	d	UV		25.000	1
2	4	2	1	Dead Loa	d	PV	2.000	90.000	
3	4	3	5	Live Load	14	UV		30.000	1
4	1	4	5	Live Load	14	PV	2.000	100.000	
5	0	5	4						
6	0								

- * نضغط [ESC] للتسجيل ثم [N] لعدم نقل تلك الاحمال لاي عضو آخر.
 - * نضغط [F9] (input) وندخل بيانات العضو الخامس وهي:

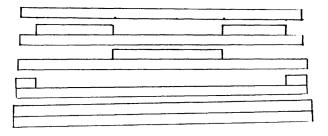
MEM	IBER LO	ADS	Loads &	moments or	n Member	5 (length=1.000)	m slope = 0.0	OOdeg)
Mem	No.of	Ld	Load ca	ise	Load	Start Loaded	(KN, KN.m	or KN/m)
No.	Loads	No.	Number	r & name	Туре	Pos(m) Len(m	n) Start val.	End val.
1	4	1	1	Dead Loa	ad UV		20.000)
2	4	2	1	Dead Lo	ad PV	0.000	50.000)
3	4	3	6	Live Loa	d5 UV		25.000)
4	4	4	6	Live Loa	d5 PV	0.000	60.000)
5	0	5	2					
6	0							

- نضعط [ESC] للتسجيل ثم [N] لعدم نقل تلك الأحمال لاى عضو أخر
- نضغط [F9] (Input) وندخل بيانات العضو السادس والأخير وهي :

MEMBER LOADS Loads & moments on Member 6 (length = 1.000m slope = 0.000deg)									
Меп	no. of	ld. k	oad ca	ise	load sta	ut loaded (K	N, KN.m or KN/n		
No.	loads	No.	Numl	ber & name	Type P	os (m) Len (m) Start Val. End va		
1	4	1	1	Dead Load	UV		20.000		
2	4	2	1	Dead Load	PV	1.000	50,000		
3	4	3	7	Live Load6	UV		25,000		
4	4	4	7	Live Load6	PV	1.000	60,000		
5	4	5	7						
6	0								

- نضغط [ESC] للتسجيل والخروج الشاشة الرئيسية .

وبعد ذلك يمكن تعريف هالات التحميل للكمرة (DL + LL) ونفترض أن عددها خمسة كما بالرسم .



- نضغط [٨] حالات التحميل (8 Combinaions) فتظهر الشاشة التالية :

Safety Factors for combination

Load Case Safety

Number and name Factor

Start a new set of Combinations Y/N (Y Erases all previous combinations)

نضغط [Y] لتسجيل حالات التحميل الجديدة والغاء الحالات السابقة فيظهر
 المؤشر اسفل الشاشة وندخل عدد حالات التحميل = خمسة فتظهر الشاشة التالية :

Safety	y Factors for Con	nbination 1
Load	Case	Safety
Numl	ber and name	Factor
1	Dead Load	1.000
2	Live Load 1	0.000
3	Live Load 2	0.000
4	Live Load 3	0.000
5	Live Load 4	0.000
6	Live Load 5	0.000
7	Live Load 6	0.000<

يوجد العنوان بالسطر الأول وهو عامل الأمان لحالة التحميل الأولى (Safety Factors For Combination 1)

والسطر الثاني به رقم الحمل واسمه (Load case number and name) وعامل الأمان (Safety factor) . وحالة التحميل الأولى (Combl) من الرسم السابق هى (Dead Load) فقط ندخل عامل الأمان = ١ أى ١٠٠ ٪ من قيمة الحمل السابق والمؤثر على كل الأعضاء ولعدم وجود أحمال حيه نترك باقى القيم = صفر .

وهي (Comb 2) معناط [F9] ثم [F6] ثم (F6) لايخال بيانات حالة التحميل الثانية (DL X 1 + LL1 X 1 + LL4 X 1)

يظهر المؤشر في أعلى الشاشة وندخل القيمة = \ ثم (Enter) للادخال وندخل
 نفس القيمة للحمل الحي الأول (LL1) .

- نضغط [F8] مرتين الوصول إلى السطر الخامس وندخل القيمة = ١ ثم (Enter) الانتخال لحالة الحمل الحي الرابع (LLA) .

تظهر الشاشة في الصورة التالية :

Safety	Factors for Con	nbination 2
Load (Case	Safety
Numbe	er and name	Factor
1	Dead Load	1.000
2	Live Load 1	1.000
3	Live Load 2	0.000
4	Live Load 3	0.000
5	Live Load 4	1.000
6	Live Load 5	0.000
7	Live Load 6	0.000<

⁻ نضغط [F9] ثم [F6] لادخال بيانات حالة التحميل الثالثة (Comb 3) وهي : - نضغط (F6) ثم (DL X 1 + LL2 X 1 + LL3 X 1)

تظهر الشاشة في الصورة التالية:

Safe	ty Factors for Com	bination 3
Load	i Case	Safety
Num	ber and name	Factor
1	Dead Load	1.000
2	Live Load 1	0.000
3	Live Load 2	1.000
4	Live Load 3	1.000
5	Live Load 4	0.000
6	Live Load 5	0.000
7	Live Load 6	0.000<

- نكرر ما سبق مع حالة التحميل الرابعة (Comb 4) وهي : (DL X 1 + LL5 X 1 + LL6 X 1)

فتظهر الشاشة في الصورة التالية

وأخيرا مع حالة التحميل الخامسة (Comb 5) وهي : (DL X 1 + LL1 X 1 + LL2 X 1+ LL3 X 1+ LL4 X 1+LL5 X 1+LL6 X 1)

فتظهر الشاشة في الصورة التالية :

Safety F	actors for Con	nbination 5
Load Ca	ise	Safety
Number	and name	Factor
1	Dead Load	1.000
2	Live Load 1	1.000
3	Live Load 2	1.000
4	Live Load 3	1.000
5	Live Load 4	1.000
6	Live Load 5	1.000
7	Live Load 6	1.000

- نضغط [Esc] لتسجيل حالات التحميل كلها فتظهر الشاشة الرئيسية .
 - نضغط [٩] ثم [٢] للبدء في الحل .
 - تظهر بيانات ونتائج المنشأ كالاتي .

Joint	positions		
Jt.	X coord	Y	coord
No.	(m)		(m)
1	0.000		0.000
2	5.000		0.000
3	9.000		0.000
4	12.000		0.000
5	16.000		0.000
6	-1.000		0.000
7	17.000		0.000
•			

	l lp	F2 Cal			F7 Up	F8 Down	F9 n Commnd	F10 ES Bottom Esca		NUMLOCK is ON
Mem No. 1	J1. no.	Jnt con	ion and fi X1 Coord (m) 0.000	Y1 Coord (m) 0.000	no.	con	X2 Coord (m) 5.000	Y2 Coord (m) 0.000	Length (m) 5.000	Slope (deg) 0.000
2 3 4 5 6 7	2 3 4 6 5	P	5.000 9.000 12.000 -1.000 16.000	0.000 0.000 0.000 0.000	4	F F F	9.000 12.000 16.000 0.000 17.000	0.000 0.000 0.000 0.000 0.000	4.000 3.000 4.000 1.000	0.000 0.000 0.000 0.000

F1 F2	F6	F7	F8	F9	F10	ESC	NUMLOCK
Relp Calc	Top	Up	Down	Commad	Bottom	Escape	is ON
Table of Sections	•						

No.	(cm2)	(cm4)	Element
1	3250.000	1269391.03	2
-			

Elements of Section no. 1
Elem Y-dim B-dim (mm)
No. (mm) (mm)
1 100.000 1000.000 200.000
2 -250.000 250.000 500.000

Input mode

F1	F2	F6	F7	F8	F9	F10	E	SC	NUMLOCK
Help	Calc	Top	Up D	own C	ommnd	Bottom	Esca	ape	is ON
Table o	of Sections			Memb	er Se	tion P	rope	rties	
Section	ı Area	Inertia	No. of	Mem	Mem	ber	No.	Sec.	Modulus E
No.	(cm2)	(cm4)	Elements	No.	Len	gth N/P	Seg	No.	(N/mm2)
1	3250.000	1269391.03	2	2	4	.000 P	ī	1	21000.000
2	0.000			3	3	.000 P	1	1	21000.000
				4	4	.000 P	1	1	21000.000
				5	1	.000 P	1	1	21000.000
				6	1	.000 P<	1	1	21000.000

	71 elp	F2 Calc	F6 F7		F9 F10 ommnd Botton	ESC n Escape	NUMLOCK is ON
Sup	ports						
	Jnt	X Restraint	Y Restraint	A Restrai	nt		
	Pos	(kN/mm)	(kN/mm)	(kNm/rad)		
1	1	FULL	FULI	. ZE	RO		
2	2	ZERO	FULI	. ZE	RO		
3	3	ZERO	FULI	. ZE	RO		
4	4	ZERO	FULI	. 2E	RO		
5	5	ZERO	FULI	. ZE	RO		

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Command Bottom Escape is ON

Global load case names

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Commnd Bottom Escape is ON

Load Case
Number and name
| factor
Dead Load	1.000<
1 live load	0.000
1 live load	0.000
4 live load	0.000
5 live load 4 0.000	
6 live load 5 0.000	

live load 6

0.000

Safety Factors for Combination 1

FI Help Safety F Load Cas Number a 1 2 3 4 5 6 7		F6 Top bination Safety factor 1.000 0.000 9.000 1.000 0.000 0.000	F7 Up 2	F8 Down	F9 Command	F10 Bottom	ESC Escape	NUMLOCK is ON
Input m	ode							
F1 Help	F2 Calc	F6 Top	F7 Up	F8 Down	F9 Commnd	F10 Bottom	ESC Escape	NUMLOCK is ON
Safety F Load Cas Number a 1 2 3 4 5 6 7		abination Safety factor 1.000 0.000 1.000 0.000 0.000						
Input a	node							
F1 Help	F2 Calc	F6 Top	F7 Up	F8 Down	F9 Commad	F10 Bottom	ESC Escape	NUMLOCK is ON

Safety	Factors for Com	pination
Load Co	ase	Safety
Number	and name	factor
1	Dead Load	1.000
2	live load l	0.000
3	live load 2	0.000
4	live load 3	0.000
5	live load 4	0.000
6	live load 5	1.000
7	live load 6	1.000

P1	F2	_P6	F/	P8	_ F9 .	F10	ESC	NUMLOCK
Help	Calc	Top	Uр	Down	Commnd	Bottom	Escape	is ON
Safety	Pactors for Co	mbination	5					
Load Ca	se	Safety						
Number	and name	factor						
1	Dead Load	1.000						
2	live load l	1.000						
3	live load 2	1.000						
4	live load 3	1.000						
5	live load 4	1.000						
6	live load 5	1.000						
7	live load 6	1.000						

F1	F2		F6	F7	F8	F9	F10	ESC	NUMLOCK
Hel	p Calc		Top	Up	Down	Commnd	Bottom	Escape	is ON
MEMBE	R LOADS	Load:	s & mome	nts on 1	dember 1	(lengt	h = 5.0	000m slope	= 0.000deg)
Mem	No.of	Ld.	Load ca	se					(N.m or kN/m)
No.	Loads	No.	Number	& name					al. End val.
1	4	1	1	Dead	Load UV			30.4	000
2	4	2	1	Dead	Load PV	2.000)	100.0	000
3	4	3	2	live lo	oad 1 UV			40.0	
4	4	4	2	live lo	oad 1 PV	2.000	}	110.0	000
5	4	5							

F1 Hel	F2 P Calc		F6 Top		F Do		F9 Commad	F10 Bottom	ESC Escape	NUMLOCK is ON
MEMBE	R LOADS	Load	s & mon	ents on	Membe	г 2	(lengt	h = 4.0	000m slo	pe = 0.000deg)
Mem	No.of	Ld.	Load c	ase		Load	Start	Loaded	i (kN,	kN.m or kN/m)
No.	Loads	No.	Number	& name		Type	Pos(m)	Len(m)	Start	val. End val.
1	4	1	1	Dea	d Load	UV			25	.000
2	4	2	1	Dea	d Load	PV	2.000)	90	.000
3	4	3	3	live	load 2	υv			30	.000
4	4	4	3	live	load 2	PV	2.000)	100	.000
5	4	5								
6	4									

F1	F2		F6	F7	F	3	F9	F10	ESC	NUMLOCK
Hel	P Calc		Top	υp	Dov	'n	Commnd	Bottom	Escape	is ON
MEMBE	R LOADS	Load	s & mome	ents on						pe = 0.000deg)
Mem	No.of	Ld.	Load ca	ase	1	bso.	Start	t Loade	i (kN,	kN.m or kN/m)
No.	Loads	No.	Number	& name	7	Гуре	Pos(m)	Len(m	Start '	val. End val.
1	4	1	1	Dead	i Load	ŪΫ			20	.000
2	4	2	1	Dead	i Load	PV	1.500)	80	-000
3	4	3	4	live 1	Load 3	υv			25	.000
4	4	4	4	live 1	load 3	PV	1.500	0	90	.000
5	4	5								
6	4									

F1 F2 Help Calc MEMBER LOADS Mem No. of No. Loads 1 4 3 4 4 4 5 4 6 4	Id. Load ca No. Number 1 1< 2 1 3 5 4 5	se & name Dead	Ember 4 Load Type Load UV Load PV ad 4 UV	Start	h = 4.0 Loaded Len(m)	ESC Escape 100m slope = 1 (km, kn.m Start val.m 25.000 30.000 100.000	
F1 F2 Help Calc MEMBER LOADS Mom No. Loads 1 4 2 4 3 4 4 4 6 4	Ld. Load ca	ase & name Dead :	Ember 5 Load Type Load UV Load PV ad 5 UV	Start	h = 1.0 Loaded Len(m)	ESC Escape 10 (kN, kN.m Start val. 20.000 50.000 60.000	NUMLOCK is ON 0.000deg) or kN/m) End val.
F1 F2	Input mode	F 7	F9	P9	F10	ESC	NUMLOCK

Hel	p Calc		Тор	Up	Do	wn	Commnd	Bottom	Escape	is ON
MEMBE	R LOADS	Load	s & mome	nts on	Membe	r 6	(lengt	h = 1.0	00m slope	= 0.000deg)
Mem	No.of	Ld.	Load ca	ase		Load	Start	Loaded	l (kN, kt	i.m or kN/m)
No.	Loads	No.	Number	& name		Туре	Pos(m)	Len(m)	Start val	. End val.
1	4	1	1<	Dea	d Load	υv			20.00	10
2	4	2	1	Dea	d Load	l PV	1.000	1	50.00	10
3	4	3	7	live	load 6	UV			25.00	10
4	4	4	7	live	load 6	PV	1.000)	60.00	00
5	4	5								
6	4									

F1 Help	F2 Calc	F6 Top	F7 Up		F9 Commnd			1	NUMLOCK is ON
•			•					JOB : B	
,		;						DATE:	
•			•				*-		~
•			•	INP	ט די ט	ATA	*5	HEET:	1
*									

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FRAME GEOMETRY

No. of Joints = 7

MEMBERS		End 1 Det	End 2 Det	ai	1s	:								
	t.:C:	X coord (m)			:Jt.:				¥	Coord (m)		Length (m)		
:-	:-:		-:		-:	-:-		-:-			- : -		-:-	
1:	1:F:	0.000	:	0.000	: 2:	F:	5.000	:		0.000	:	5.000		0.00
2:	2:F:	5.000	:	0.000	: 3:	F:	9.000			0.000	:	4.000	:	0.00
3:	3:F:	9.000	:	0.000	: 4:	: F:	12.000	:		0.000		3.000	:	0.00
4:	4:F:	12.000	:	0.000	: 5:	:F:	16.000	:		0.000	:	4.000	:	0.00
5:	6:F:	-1.000	:	0.000	: 1:	: F:	0.000	:		0.000	:	1.000	:	0.00
6:	5:F:	16.000		0.000	: 7	: F :	17.000	:		0.000		1.000		0.00
								·			<u></u> .		٠.	3.00

TABLE OF SECTIONS

Section Number	:	(cm2):	(cm4):	No:	D (mm):	B (mon):	f specified) Y (mm)
1	:	3250.00	1269391.0:	1:	200.00: 500.00:	1000.00: 250.00:	100.00

SUMMARY OF MEMBER PROPERTIES

Member 1 - 6 PRISHATIC : Section Number 1 : Modulus E = 21000.0 N/mm2

No. of Supports = 5

Number	:	 (kN/mm)	:	(kN/mana)	:	Angular Restraint (kN.m/radian)	
1		PULL	:	FULL	:	ZERO	
2		ZERO		FULL	:	ZERO	
3	:	ZERO	:	FULL	:	ZERO	
4	:	ZERO	:	FULL	:	ZERO	
5	:	ZERO	:	FULL	:	ZERO	

APPLIED LOADS AND HOMENTS

MEMBER 1

LOAD CASE	:Type: Start	: Length:	Start Value:	End Value
1: Dead Load 1: ''	d: UV : : PV : 2.000 m	: :	30.000 kN/m: 100.000 kN : 40.000 kN/m: 110.000 kN :	

*	- -	×	 	-		 		 	* JOB	: BI	EAM1
*	:	 T	 		т	 	т	 	* DATE		
* ANALYSE (C)Copyright Comp	uter		 			 		 ted			-

APPLIED LOADS AND MOMENTS continued

MEMBER 2

No : Name	e	:Type:	Start:	Length: Sta	D / M O M E N T art Value: End Value	
1:	Dead Loa	d: UV :		: 25.	.000 kN/m:	
1: 3:	live load		2.000 m :		.000 kN : .000 kN/m:	
3:			2.000 m:		.000 kN :	

MEMBER 3

LOAD No: Name		:Type:	Length:	O A D / M O M E N Start Value:	End Value
11	Dead Los			20.000 kN/m:	

```
______
LOAD CASE :LOAD: POSITION :LOAD/MOMENT
No: Name :Type: Start: Length: Start Value: !
          :Type: Start: Length: Start Value: End Value
 --:----------
                                   -----:--
 1: Dead Load: UV: : : 25.000 kN/m:

1: '': PV: 2.000 m: : 90.000 kN/m:

5: live load 4: UV: : : 100.000 kN/m:

5: '': PV: 2.000 m: : 100.000 kN/m:
 5: live load 4: UV : : : 5: '' : PV : 2.000 m :
MEMBER 5
L O A D C A S E :LOAD: P O S I T I O N : L O A D / M O M E N T
No : Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV: : : 20.000 kN/m:
1: '': PV: 0.000 m: : 50.000 kN :
6: live load 5: UV: : : 25.000 kN/m:
6: '': PV: 0.000 m: : 60.000 kN:
MEMBER 6
LOAD CASE :LOAD: POSITION : LOAD / HOMENT
No : Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV: : 20.000 kN/m:
1: '': PV: 1.000 m: : 50.000 kN :
7: live load 6: UV: : : 25.000 kN/m:
7: '': PV: 1.000 m: : 60.000 kN :
                                                         * JOB : BEAM1
                          ٠
                               INPUT DATA
        * ANALYSE (C)Copyright Computer and Design Services Limited 1985
   COMBINATIONS
                  : TABULATED VALUES OF PARTIAL SAFETY FACTORS
LOAD CASE : Combination Number
No: Name : 1 : 2 : 3 : 4 : 5
               ----!----!----!----!----!----
        Dead Load:1.000:1.000:1.000:1.000:1.000
      live load 1: :1.000: :1.000: 1.000
live load 2: : :1.000: :1.000
live load 3: : :1.000: :1.000
live load 4: :1.000: : :1.000
live load 5: : :1.000: : :1.000
 2:
 3:
  4:
 5:
6:
                                  :1.000:1.000
       live load 6:
                       .
```

•			• •			* DATE:	
•			•	- -		*	
• •			* ANALY	SIS RES	ULTS		
* ANALYSE (C)Copyr	ight Compu	ter and Desi	gn Services	Limited 1	985	
RESULTS FOR						****	-c
RESULTS FUR	COMBINA	PION 1					
Joint Displa	cements	and React	ions				
Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Ру ()	(N)	M (kN
1	0.00	0.00	-0.0004	0.000	192.1	174	0.
2	0.00	0.00	0.0001	0.000	242.4	109	0.
3	0.00	0.00	0.0000	0.000	137.6		0.
4	0.00	0.00	-0.0001	0.000	175.0	152	0.
5	0.00	0.00	0.0001	0.000	162.7	721	0.
6	0.00	0.35	-0.0003				
7	0.00	0.04	0.0000				
Summation of	rorces	and Momen	ES				
		Px (kN)	Py (kN)	Mo (kN.m)			
Member Loads	•	0.000	-910.0C0	-7155.000			
Joint Loads		0.000	0.000	0.000			
Reactions		0.000	-910.000	-7155.000			
Summation		0.000	910.000	7155.000			
Summation RESULTS FOR			0.000	0.000			
		TION 2		0.000			
RESULTS FOR Joint Displa Joint No.	dx(mm)	TION 2 and React	ions	Px (kN)	Py (kn)	
RESULTS FOR Joint Display Joint No.	dx(mm)	TION 2 and React dy(mm) 0.00	0(rad) -0.0014	Px (kn) 0.000	331.	472	·o.
RESULTS FOR Joint Display Joint No.	dx(mm) 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00	0(rad) -0.0014 0.0007	Px (kn) 0.000 0.000	331 460	472 817	`o.
RESULTS FOR Joint Displa Joint No. 1 2 3	dx(mm) 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00	0(rad) -0.0014 0.0007 0.0000	Px (kN) 0.000 0.000	331.4 460.4	472 817 027	`0. 0.
RESULTS FOR Joint Displa Joint No. 1 2 3 4	dx(mm) 0.00 0.00 0.00 0.00	dy(mm) 0.00 0.00 0.00 0.00	0(rad) -0.0014 0.0007 0.0000 -0.0003	Px (kn) 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
Joint No. 1 2 3 4 5	dx(mm) 0.00 0.00 0.00 0.00 0.00	dy(mm) 0.00 0.00 0.00 0.00 0.00	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006	Px (kN) 0.000 0.000	331.4 460.4	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Displa Joint No. 1 2 3 4 5 6	dx(mm) 0.00 0.00 0.00 0.00 0.00	dy(mm) 0.00 0.00 0.00 0.00 0.138	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013	Px (kn) 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
Joint No. 1 2 3 4 5	dx(mm) 0.00 0.00 0.00 0.00 0.00	dy(mm) 0.00 0.00 0.00 0.00 0.00	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006	Px (kn) 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Displa Joint No. 1 2 3 4 5 6	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 1.38 0.49	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013	Px (kn) 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Displa Joint No. 1 2 3 4 5 6 7	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 1.38 0.49	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005	Px (kN) 0.000 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Displa Joint No. 1 2 3 4 5 6 7	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 1.38 0.49	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013	Px (kn) 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Displa Joint No. 1 2 3 4 5 6 7 Summation of	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 1.38 0.49 and Momer	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005	Px (kN) 0.000 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Displa Joint No. 1 2 3 4 5 6 7 Summation o	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 1.38 0.49 and Momer Px (kN) 0.000 0.000	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Disple Joint No. 1 2 3 4 5 6 7 Summation o	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 1.38 0.49 and Momer Px (kN) 0.000 0.000	O(rad) -0.0014 -0.0007 -0.0003 -0.0003 -0.0001 -0.0001 -0.0001 -0.0005 -0.0001 -1440.0000	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Displa Joint No. 1 2 3 4 5 6 7 Summation o	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 1.38 0.49 and Momer Px (kN) 0.000 0.000	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0013 0.0005	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Disple Joint No. 1 2 3 4 5 6 7 Summation o	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 1.38 0.49 and Momer Px (kN) 0.000 0.000	O(rad) -0.0014 -0.0007 -0.0003 -0.0003 -0.0001 -0.0001 -0.0001 -0.0005 -0.0001 -1440.0000	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331.4 460.4 41.4 356.	472 817 027 318	0. 0. 0.
RESULTS FOR Joint Disple Joint No. 1 2 3 4 5 6 7 Summation of Member Load Joint Loads Reactions	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.49 and Momer Px (kN) 0.000 0.000 0.000	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0001 0.0005 ts Py (kN) -1440.000 0.000 0.000	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356. 250.	472 817 027 318 365	0.
RESULTS FOR Joint Disple Joint No. 1 2 3 4 5 6 7 Summation of Member Load Joint Loads Reactions	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.49 and Momer Px (kN) 0.000 0.000 0.000	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0001 0.0005 ts Py (kN) -1440.000 0.000 0.000	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356. 250.	472 817 027 318 365	0.
RESULTS FOR Joint Disple Joint No. 1 2 3 4 5 6 7 Summation of Member Load Joint Loads Reactions	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.49 and Momer Px (kN) 0.000 0.000 0.000	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0001 0.0005 ts Py (kN) -1440.000 0.000 0.000	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356. 250.	472 817 027 318 365	: BEAM
RESULTS FOR Joint Disple Joint No. 1 2 3 4 5 6 7 Summation of Member Load Joint Loads Reactions	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.49 and Momer Px (kN) 0.000 0.000 0.000	0(rad) -0.0014 0.0007 0.0000 -0.0003 0.0006 -0.0001 0.0005 ts Py (kN) -1440.000 0.000 0.000	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331. 460. 41. 356. 250.	472 817 027 318 365	0. 0. 0. 0.
RESULTS FOR Joint Disple Joint No. 1 2 3 4 5 6 7 Summation of Member Load Joint Loads Reactions	dx(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.00	TION 2 and React dy(mm) 0.00 0.00 0.00 0.00 0.00 0.00 0.49 and Momer Px (kN) 0.000 0.000 0.000	O(rad) -0.0014 -0.0007 -0.0007 -0.0009 -0.0013 -0.0001	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	331 460 41 356 250	472 817 027 318 365 	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

RESULTS FOR COMBINATION 3

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	М (kN.m)
1	0.00	0.00	-0.0003	0.000	184.492	0.000
2	0.00	0.00	-0.0001	0.000	345.408	0.000
3	0.00	0.00	0.0001	0.000	372.899	0.000
4	0.00	0.00	0.0000	0.000	232.714	0.000
5	0.00	0.00	0.0001	0.000	159.488	0.000
6	0.00	0.23	-0.0002			
7	0.00	0.01	0.0000			

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -1295.000 0.000	Mo (kN.m) -10427.500 0.000
Reactions Summation	0.000	-1295.000 1295.000	-10427.500 10427.500
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 4

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mun)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0000	0.000	296.211	0.000
2	0.00	0.00	0.0001	0.000	214.841	0.000
3	0.00	0.00	0.0000	0.000	157.713	0.000
4	0.00	0.00	0.0000	0.000	139.598	0.000
5	0.00	0.00	-0.0002	0.000	271.638	0.000
6	0.00	-0.12	0.0002			
7	0.00	-0.35	-0.0004			

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -1080.000 0.000	Mo (kN.m) -8515.000 0.000
Reactions Summation	0.000	-1080.000 1080.000	-8515.000 8515.000
Summation	0.000	0.000	0.000

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RESULTS FOR COMBINATION 5

Joint Displacements and Reactions

Joint No.	dx(mm)	dy (mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	-0.0009	0.000	427.826	0.000
ž	0.00	0.00	0.0003	0.000	536.247	0.000
3	0.00	0.00	0.0001	0.000	296.351	0.000
4	0.00	0.00	~0.0002	0.000	378.526	0.000
5	0.00	0.00	0.0002	0.000	356.049	0.000
6	0.00	0.79	-0.0007			
7	0.00	0 07	0.0000			

Summation of Forces and Moments

Member Loads	0.000	-1995.000	-15587.500
Joint Loads	0.000	0.000	0.000
Reactions	0.000	-1995.000	-15587.500
Summation		1995.000	15587.500
Summation	0.000	0.000	0.000

Maxima for Member 1

	Shear (kN)	Maximum Axi					
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-127.826	0.000	0.000	124.349	2.000	-124.129	5.000
2	-298.528	0.000	0.000	322.943	2.000	-257.642	5.000
3	-135.508	0.000	0.000	108.984	2.000	~162.541	5.000
4	141.211	0.000	0.000	89.921	2.000	-132.500	0.000
5	-287.174	0.000	0.000	273.151	2.000	-273.371	5.000

Maxima for Member 2

	Shear (kN)	Maximum Axi				ent (kN.m)	>
Comb.	(Abs. Max.)(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	114.583	0.000	0.000	55.038	2.000	-124.129	0.000
2	162.289	0.000	0.000	26.871	2.892	-257.642	0.000
3	209.900	0.000	0.000	147.259	2.000	-162.541	0.000
4	106.051	0.000	0.000	60.656	2.000	-101.447	0.000
5	249.073	0.000	0.000	114.775	2.000	-273.371	0.000

Maxima for Member 3

Load	Shear (kN)	Maximum Axi	al (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-77.773	0.000	0.000	25.045	1.500	-69.115	3.000
2	-126.684	0.000	0.000	15.946	0.666	-158.539	3.000
3	172.798	0.000	0.000	65.630	1.500	-142.942	0.000
4	73.764	0.000	0.000	30.905	1.500	-57.241	0.000
5	-169.575	0.000	0.000	55.433	1.500	-148.305	3.000

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	a for Member			**********			*******
Load	Shear (kN)	Maximum A	xial (kN)	< B			
1	(Abs. Max.)(Compression 0.000	(Tension)) Max.+ve 75.442		Maxve	Pos. (m)
2	229.635	0.000	0.000	190.731		-69.115	0.000
3	100.512	0.000	0.000	68.976		-158.539 -82.048	0.000
4	-116.638	0.000	0.000	50.776			
5	208.951	0.000	0.000	159.598			0.000
	200.931		0.000			-148.305	
Maxim	a for Member	5					
Load	Shear (kN)	Maximum A	xial (kN)	< B	ending Mome	ent (kN.m)	
Comb.	(Abs. Max.)	Compression	(Tension	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-70.000	0.000	0.000			-60.000	
2	-70.000	0.000	0.000	0.000	0.000	-60.000	
3	-70.000	0.000	0.000	0.000		-60.000	
4	-155.000	0.000	0.000	0.000			
5	-155.000	0.000	0.000	0.000		-132.500	
Maxim	a for Member	 6					
Load				_			
	Shear (kN) (Abs. Max.)(Maximum A	XIAL (KN)	< B	ending Mome		>
1	70.000	Compression 0.000	(Tension			Maxve	Pos. (m)
2	70.000	0.000	0.000			-60.000	
3	70.000	0.000		0.000		-60.000	
4	155.000	0.000	0.000	0.000			
- 5	155.000	0.000	0.000	0.000		-132.500 -132.500	0.000
						-132.500	
RESUL	TS FOR COMBIN	ATION 1 M	EMBER 1				
		ear Force					
Jt. 2	rom End 1	(kN)	(kN				
JE. 2 D.75L		-127.826	0.00				
0.75L 0.50L		-90.326 -52.826	0.00				
0.30L 0.25L		-52.826 84.674	0.00				
Jt. 1		122.174	0.00		280 0.0		
· · · · · ·	0.000	122.1/4	0.00	0 -60.	000 0.0	0.0	-0.024
Maxim	um +ve Bendin um -ve Bendin	g Moment	124.349	kN.m at	2.000m from	n joint 1	
			-124.129		5.000m from		

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		BINATION 1							
Posit	ion (m)	Shear Force	Axial Comp.	Bend. Mo	ment	dx	d	ly	Slope
fro	ma End 1	(kN)	(kN)	(k	(N.m)	(mm)	(ma	ı)	(deg)
Jt. 3	4.000	-75.417	0.000	-45	.796	0.0	0.	0	0.003
0.75L	3.000	-50.417	0.000	17	.121	0.0	-0.	1	0.009
0.50L	2.000	64.583	0.000	55	.038	0.0	-0.	1	-0.003
0.25L	1.000	89.583	0.000	-22	.045	0.0	0.	0	-0.007
Jt. 2	0.000	Shear Force (kN) -75.417 -50.417 64.583 89.583 114.583	0.000	-124	.129	0.0	0.	0	0.008
Maximum	+ve Ber	nding Moment nding Moment	55.038 kN	.m at	2.000m	from	joint	2	
Maximum	-ve Ber	ding Moment	-124.129 kN	.m at	0.000m	from	joint	2	
		BINATION 1							
Posit	ion (m)	Shear Force	Axial Comp.	Bend.Mc	ment	dx	d	lv	Slope
fre	ma End i	(kN)	(kN)	()	(N.m)	(mm)	(mm	ú	(deg
Jt. 4	3.000	-77.773	0.000	-69	.115	0.0	·o.	ó	-0.009
0.75L	2.250	~62.773	0.000	-16	-410	0.0	0.	0	0.001
0.50L	1.500	-47.773	0.000	25	.045	0.0	0.	0	0.001
0.25L	0.750	47.227	0.000	-4	.751	0.0	9.	0	-0.001
Jt. 3	0.000	Shear Force (kN) -77.773 -62.773 -47.773 47.227 62.227	0.000	-45	.796	0.0	o.	0	0.003
Maximum	-ve Ber	nding Moment nding Moment	-69.115 kN	.m at	3.000m	from	joint	3	
		BINATION 1							
KESULIS	FUR CUR	ABINATION I	* Nadman						
Posit	ion (m)	Shear Force	Axial Comp.	Bend. Mo	ment	dх		ly	Slope
fro	om End 1	(kN)	(kN)	()	(N.m)	(mm)	(mn	1)	(deg
Jt. 5	4.000	-92.721	0.000	-60	.000	0.0	Ō.	Ò	0.00
0.75L	3.000	-67.721	0.000	20	.221	0.0	-0.	2	0.010
0.50L	2.000	47.279	0.000	75	.442	0.0	-0.	3	0.000
0.25L	1.000	72.279	0.000	15	.664	0.0	-0.	2	-0.01
Jt. 4	0.000	(kN) -92.721 -67.721 47.279 72.279 97.279	0.000	-65	.115	0.0	0.	0	-0.00
Maximum	n -ve Ber	nding Moment nding Moment	-69.115 kN	.m at	0.000m	from	ioint	ā	
RESULTS	FOR COM	IBINATION 1	MEMBER 5						
Posit	ion (m)	Shear Force	Arial Core	Rend 4	ment	4		ly	e1a-
	(,		comp.	~	ADDED IN C	u x	,	17	Slope

fro	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. l	1.000	-70.000	0.000	-60.000	0.0	0.0	-0.024
0.75L	0.750	-65.000	0.000	-43.125	0.0	0.1	-0.021
0.5~	0.500	-60.000	0.000	-27.500	0.0	0.2	-0.020
0.25L	0.250	-55.000	0.000	-13.125	0.0	0.3	-0.019
Jt. 6	0.000	-50-000	0.000	0.000	0.0	0.4	-0.018
	+ve Bending		0.000 kN.m			joint 6	
Maximum	-ve Bending	Moment	-60.000 kN.m	at 1.000m	from	joint 6	

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		BINATION 1			*****		*======		*****
RESULTS	FOR COM	BINATION 1	MEMBER	6					
Positio	on (m)	Shear Force	Axial	Comp.	Bend.	Moment	dx	dy	Slope
	End 1			(kN)		(kN.m)			
		50.000		0.000	•	0.000	0.0	0.0	0.000
0.75L	0.750	55.000		0.000	-	-13.125	0.0	0.0	0.001
	0.500			0.000	-	-27.500	0.0	0.0	
0.25L Jt. 5	0.250	65.000 70.000		0.000		-43.125	0.0	0.0	
JE. 5	0.000	70.000		0.000	-	-60.000	0.0	0.0	0.007
Maximum ·	tve Bend	ding Moment	0	.000 k	N.m.at	1.0	nom from	ioint 5	
Maximum .	-ve Ben	ding Moment	-60	.000 k	N.m at	0.0	00m from	ioint 5	
***								*******	
RESULTS	FOR COM	BINATION 2	MEMBER	1					
Positio	on (m)	Shear Force	Axial	Comp.	Bend	. Moment	dx	dv	Slope
from	End 1	(kN) -298.528		(kÑ)		(kN.m)	(mm)		
Jt. 2	5.000	-298.528		0.000	-2	257.642	0.0	0.0	0.039
0.75L	3.750	-211.028		0.000)	60.831	0.0	-1.3 -2.2	0.063
0.50L	2.500	-123.528		0.000	, ;	269.929	0.0	-2.2	
0.25L Jt. 1	1.250	173.972 261.472		0.000		212.152	0.0	-1.7	
Jt. 1	0.000	261.472		0.000		-60.000	0.0	0.0	-0.083
Mavimum .	tve Ren	ding Moment	322	943 6	N+	2.0	OOm from	ioint 1	
Maximum .	-ve Ben	ding Moment	-257	.642 k	N.m at	5.0	00m from	joint 1	
RESULTS	FOR COM	BINATION 2	MEMBER	2					
Positio	on (m)	Shear Force	Axial	Comp.	Bend	. Moment	dx	dv	Slope
from	End 1	(kN)		(kN)		(kN.m)	(mm)	(mm)	
	4.000	-27.711		0.000		11 612	`^ ^		0.000
0.75L	3.000	-2.711		0.000	1	26.724	0.0		
0.50L	2.000			0.000	,	10.330	0.0		
0.25L	1.000	137.289		0.000		107.853			
Jt. 2	0.000	162.289		0.000) -:	257.642	0.0	0.0	0.039

Mavimum	tve	Bending	Moment	26.871 kN.m at	2.892m	from	joint	2
		Bending		_257.642 kN_m at	0.000m	from	joint	2

RESULTS FOR COMBINATION 2 MEMBER 3

ion (m) n End 1 3.000 2.250 1.500 0.750 0.000	Shear Force (kN) -126.684 -111.684 -96.684 -1.684 13.316	Axial Comp. (kN) 0.000 0.000 0.000 0.000 0.000 0.000	end.Moment (kN.m) -158.539 -69.151 8.987 15.875 11.513	dx (mm) 0.0 0.0 0.0 0.0	dy (mm) 0.0 0.1 0.1 0.0	Slope (deg) -0.018 0.000 0.005 0.002
	ding Moment ding Moment	15.946 kN.: -158.539 kN.:				

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RESULTS FOR COMBINATION 2 MEMBER 4

Positi	on (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from	End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 5	4.000	-180.365	0.000	-60.000	0.0	0.0	0.032
0.75L	3.000	-125.365	0.000	92.865	0.0	-0.6	0.028
0.50L	2.000	119.635	0.000	190.731	0.0	-0.8	-0.004
0.25L	1.000	174.635	0.000	43.596	0.0	-0.5	-0.030
Jt. 4	0.000	229.635	0.000	-158.539	0.0	0.0	-0.018

Maximum +ve Bending Moment 190.731 kN.m at 2.000m from joint 4
Maximum -ve Bending Moment -158.539 kN.m at 0.000m from joint 4

RESULTS FOR COMBINATION 2 MEMBER 5

	ion (m) m End 1	Shear Force (kN)	Axial Comp. (kN)	Bend.Moment (kN.m)	dx (mm)	dy (mm)	Slope (deg)
Jt. 1	1.000	-70.000	0.000	-60.000	0.0	0.0	-0.083
0.75L	0.750	-65.000	0.000	-43.125	0.0	0.4	-0.080
0.50L	0.500	-60.000	0.000	-27.500	0.0	0.7	-0.078
0.25L	0.250	-55.000	0.000	-13.125	0.0	1.0	-0.077
Jt. 6	0.000	-50.000	0.000	0.000	0.0	1.4	-0.077
Mavimum	tue Ben	ding Moment	0.000 km	m at 0.000	m from	ioint 6	

Maximum +ve Bending Moment 0.000 kN.m at 0.000m from joint 6
Maximum -ve Bending Moment -60.000 kN.m at 1.000m from joint 6

RESULTS FOR COMBINATION 2 MEMBER 6

Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN.m) (mm) (mm) (deg)

Jt. 7 1.000	50-000	0.000	0.000	0.0	0.5	0.026
0.75L 0.750	55.000	0.000	-13.125	0.0	0.4	0.027
0.50L 0.500	60.000	0.000	-27.500	0.0	0.3	0.028
0.25L 0.250	65.000	0.000	-43.125	0.0	0.1	0.030
Jt. 7 1.000 0.75L 0.750 0.50L 0.500 0.25L 0.250 Jt. 5 0.000	70.000	0.000	-60.000	0.0	0.0	0.032
		0.000 km. -60.000 km.				
RESULTS FOR CO	ABINATION 3	MEMBER 1				
Position (m)	Shear Force	Avial Comp. I	lend Moment	4-	dv	Slone
from End 1	(kN)	(kN)	(kH.m)	(mm)	(mm)	(deg)
Jt. 2 5.000	-135.508	0.000	-162.541	0.0	0.0	-0.005
0.75L 3.750	-98.008	0.000	-16.593	0.0	-0.2	0.018
0.50L 2.500	-60.508	0.000	82.480	0.0	-0.5	0.008
0.25L 1.250	76.992	0.000	59.677	0.0	-0.4	-0.016
Position (m) from End 1 Jt. 2 5.000 0.75L 3.750 0.50L 2.500 0.25L 1.250 Jt. 1 0.000	114.492	0.000	-60.000	0.0	0.0	-0.017
Maximum -ve Ber	nding Moment	108.984 kN.: -162.541 kN.:	n at 5.000m	from	ioint 1	
	.,	**************			* JOB : B	
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* ANALYSE (C): * ANALYSE (C): *RESULTS FOR CO Position (s) from End 1 Jt. 3 4.000 0.75L 3.000 0.50L 2.000 Jt. 2 0.000 Jt. 2 0.000	Copyright Com MBINATION 3 Shear Force (kN) -200.100 -145.100 99.900 154.900 209.900	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (kN) 0.000 0.000 0.000 0.000 0.000	I S R E S U	dx (zmm) 0.0 0.0 0.0 0.0	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.5 -0.3 0.0	11
* * * * * * * * * * * * * * * * * * *	Copyright Com BINATION 3 Shear Force (kN) -200.100 145.100 99.900 154.900 209.900 adding Moment	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (NN) 0.000 0.000 0.000 0.000 0.000 147.259 kN162.5541 kN.	IS RESU- 	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.5 -0.3 0.0 joint 2	Slope (deg) 0.008 0.019 -0.001 -0.020 -0.005
* * * * * * * * * * * * * * * * * * *	Copyright Company of the Company of	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (kN) 0.000 0.000 0.000 0.000 147.259 kN162.541 kN.:	IS RESU- 	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.5 -0.3 0.0 joint 2	Slope (deg) 0.008 0.019 -0.001 -0.020 -0.005
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* ANALYSE (C): * ANALYSE (C): RESULTS FOR CO Position (m) from End 1 Jt. 3 4.000 0.75L 3.000 0.75L 2.000 0.25L 1.000 Jt. 2 0.000 Maximum +ve Be RESULTS FOR CO	COPYRIGHT COMMERCATION 3 Shear Force (kN) -200.100 -145.100 99.900 154.900 209.900 anding Moment MBINATION 3	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (kN) 0.000 0.000 0.000 0.000 147.259 kN162.541 kN	I S R E S U a Services Lin (kN.m) -142.942 29.658 147.259 -162.541 a at 2.000m at 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 a from	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.3 0.0 joint 2	Slope (deg) 0.009 0.019 -0.021 -0.020 -0.005
* ANALYSE (C): * ANALYSE (C): RESULTS FOR CO Position (m) from End 1 Jt. 3 4.000 0.75L 3.000 0.75L 2.000 0.25L 1.000 Jt. 2 0.000 Maximum +ve Be RESULTS FOR CO	COPYRIGHT COMMERCATION 3 Shear Force (kN) -200.100 -145.100 99.900 154.900 209.900 anding Moment MBINATION 3	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (kN) 0.000 0.000 0.000 0.000 147.259 kN162.541 kN	I S R E S U a Services Lin (kN.m) -142.942 29.658 147.259 -162.541 a at 2.000m at 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 a from	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.3 0.0 joint 2	Slope (deg) 0.009 0.019 -0.021 -0.020 -0.005
* ANALYSE (C): * ANALYSE (C): RESULTS FOR CO Position (m) from End 1 Jt. 3 4.000 0.75L 3.000 0.75L 2.000 0.25L 1.000 Jt. 2 0.000 Maximum +ve Be RESULTS FOR CO	COPYRIGHT COMMERCATION 3 Shear Force (kN) -200.100 -145.100 99.900 154.900 209.900 anding Moment MBINATION 3	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (kN) 0.000 0.000 0.000 0.000 147.259 kN162.541 kN	I S R E S U a Services Lin (kN.m) -142.942 29.658 147.259 -162.541 a at 2.000m at 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 a from	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.3 0.0 joint 2	Slope (deg) 0.009 0.019 -0.021 -0.020 -0.005
* ANALYSE (C): * ANALYSE (C): RESULTS FOR CO Position (m) from End 1 Jt. 3 4.000 0.75L 3.000 0.75L 2.000 0.25L 1.000 Jt. 2 0.000 Maximum +ve Be RESULTS FOR CO	COPYRIGHT COMMERCATION 3 Shear Force (kN) -200.100 -145.100 99.900 154.900 209.900 anding Moment MBINATION 3	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (kN) 0.000 0.000 0.000 0.000 147.259 kN162.541 kN	I S R E S U a Services Lin (kN.m) -142.942 29.658 147.259 -162.541 a at 2.000m at 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 a from	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.3 0.0 joint 2	Slope (deg) 0.009 0.019 -0.021 -0.020 -0.005
* ANALYSE (C): * ANALYSE (C): RESULTS FOR CO Position (m) from End 1 Jt. 3 4.000 0.75L 3.000 0.75L 2.000 0.25L 1.000 Jt. 2 0.000 Maximum +ve Be RESULTS FOR CO	COPYRIGHT COMMERCATION 3 Shear Force (kN) -200.100 -145.100 99.900 154.900 209.900 anding Moment MBINATION 3	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (kN) 0.000 0.000 0.000 0.000 147.259 kN162.541 kN	I S R E S U a Services Lin (kN.m) -142.942 29.658 147.259 -162.541 a at 2.000m at 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 a from	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.3 0.0 joint 2	Slope (deg) 0.009 0.019 -0.021 -0.020 -0.005
* ANALYSE (C): * ANALYSE (C): RESULTS FOR CO Position (m) from End 1 Jt. 3 4.000 0.75L 3.000 0.75L 2.000 0.25L 1.000 Jt. 2 0.000 Maximum +ve Be RESULTS FOR CO	COPYRIGHT COMMERCATION 3 Shear Force (kN) -200.100 -145.100 99.900 154.900 209.900 anding Moment MBINATION 3	* A N A L Y S puter and Design MEMBER 2 Axial Comp. (kN) 0.000 0.000 0.000 0.000 147.259 kN162.541 kN.:	I S R E S U a Services Lin (kN.m) -142.942 29.658 147.259 -162.541 a at 2.000m at 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 a from	* DATE: *SHEET: 985 dy (mm) 0.0 -0.3 -0.3 0.0 joint 2	Slope (deg) 0.009 0.019 -0.020 -0.020 -0.020

		ding Moment							
		BINATION 3							
Positi	on (m)	Shear Force			Bend.	Moment	dx	dy	Slope
from	End 1	(kN) -89.488		(kN)		(kN.m)	(mm)	(mm)	(deg) 0.005
Jt. 5	4.000	-89.488		0.000	-	(kN.m) 60.000	0.0	0.0	
0.75L	3.000	-64.488		0.000		16.988	0.0	-0.1	
0.50L	2.000	50.512		0.000		68.976	0.0	-0.2	-0.001
0.25L	1.000	75.512 100.512		0.000		16.988 68.976 5.964 82.048	0.0	-0.1	-0.009
									-0.002
Maximum	-ve Ber	nding Moment nding Moment	-82	.048 kb	.m at	0.000	m from	joint 4	
		4BINATION 3							
Positi	ion (m)	Shear Force (kN) -70.000 -65.000 -60.000 -55.000	Axial	Comp.	Bend.	Moment	фx	dy	Slope
from	n End 1	(kN)		(kN)		(kN.m)	(mm)	(mm)	(deg)
Jt. 1 0.75L 0.50L 0.25L	1.000	-70.000 -65.000 -60.000 -55.000 -50.000		0.000	-	60.000	0.0	0.0	
0.75L	0.750	-65.000		0.000	-	43.125	0.0	0.1	
0.50L	0.500	-60.000		0.000	-	27.500	0.0	0.1	-0.013
0.25L	0.250	-55.000		0.000	-	13.125	0.0	0.2	
Jt. 6	0.000	-50.000		0.000		0.000	0.0	0.2	-0.011
Maximum	+ve Ber	nding Moment nding Moment	0	.000 ki	.m at	0.000	m from	joint 6	
Maximum	-ve Ber	nding Moment	-60	.000 kt	i.m at	1.000	m from	joint 6	
•		**********						* JOB : E	
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* ANAL) RESULTS Positi	FOR CONtion (m)	Gopyright Com HBINATION 3 Shear Force (kN) 50.000 55.000	* A N puter a MEMBER Axial	A L Y nd Desi 6 Comp. (kN) 0.000 0.000	S I S ign Sez	RESU	L T S	* JOB : E * DATE: *SHEET:	12
ANALY RESULTS Positi from Jt. 7 0.75L 0.75L	FOR COM ion (m) n End 1 1.000 0.750	Gopyright Com HBINATION 3 Shear Force (kN) 50.000 55.000	* A N puter a MEMBER Axial	A L Y nd Desi 6 Comp. (kN) 0.000 0.000	S I S ign Sez	RESU	L T S	* JOB : E * DATE: *SHEET:	12
* ANALY * ANALY RESULTS Positifros 1. 7 0.75L 0.50L	FOR COM ion (m) m End 1 1.000 0.750	Copyright Com BINATION 3 Shear Force (kN) 50.000 55.000 60.000 65.000	* A N puter a MEMBER Axial	ALY	S I S ign Sez	RESU	L T S	* JOB : E * * DATE: * * DATE: * * SHEET: 1985 dy (mm) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Slope (deg) -0.001 -0.001 0.000
* ANALY * ANALY * ANALY RESULTS Positi from Jt. 7 0.75L 0.50L 0.25L Jt. 5	FOR CON- ion (m) n End 1 1.000 0.750 0.500 0.250	Copyright Com WBINATION 3 Shear Force (kN) 50.000 60.000 65.000 70.000	* A N * A N puter a MEMBER Axial	A L Y nd Desi 6 Comp. (kN) 0.000 0.000 0.000 0.000	S I S	RESU Vices Li Woment (kN.m) 0.000 13.125 27.500 43.125 60.000	LTS dx (num) 0.0 0.0 0.0	* JOB : E *	Slope (deg) -0.001 -0.001 0.000
* ANALI * ANALI * Positi from Jt. 7 0.50L 0.25L 0.25L Maximum Maximum Maximum	YSE (C)(ion (m)) n End 1 1.000 0.750 0.500 0.250 0.000 +ve Ber-ve Ber	Dopyright Communication 3 Shear Force (kW) 50.000 60.000 60.000 70.000 do.000 d	* A N * A N puter a MEMBER Axial	A L Y nd Desi 6 Comp. (kN) 0.000 0.000 0.000 0.000	S I S gn Ser Bend.	RESU vices Li wices Li Moment (kN.m) 0.000 13.125 27.500 43.125 60.000 1.000 0.000	dx (num) 0.0 0.0 0.0 0.0 m from	* JOB : E * DATE: * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 5	Slope (deg -0.001 0.000 0.000
* ANALIS RESULTS Posit; fros Jt. 7 0.75L 0.50L 0.25L Jt. 5 Maximum Maximum	(SE (C)C FOR COP ion (m) n End 1 1.000 0.750 0.500 0.250 0.000 +ve Ber	Gopyright Com HBINATION 3 Shear Force (kN) 50.000 55.000	* A N puter a MEMBER Axial	A L Y Comp. (kn) 0.000 0.000 0.000 0.000 0.000 0.000 kn)	S I S gn Ser Bend.	RESU vices Li wices Li Moment (kN.m) 0.000 13.125 27.500 43.125 60.000 1.000 0.000	dx (num) 0.0 0.0 0.0 0.0 m from	* JOB : E * DATE: * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 5	Slope (deg) -0.001 0.000 0.002
* ANALIS Positi fros Jt. 7 0.75L 0.50L 0.50L Jt. 5 Maximum Maximum RESULTS	FOR CON- tion (m) n End 1 1.000 0.750 0.500 0.250 0.0250 +ve Ber- -ve Ber	Dopyright Com BINATION 3 Shear Force (kN) 50.000 60.000 70.000 adding Moment dding Moment	* A N puter a MEMBER Axial 0 -60 MEMBER	A L Y Comp. (kN) 0.000 0.000 0.000 0.000 0.000 0.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000	S I S gn Sez Bend.	RESU vices Li 	LTS mited: dx (num) 0.0 0.0 0.0 0.0 0.0 m from	* JOB : E * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0 0.0 joint 5 joint 5	Slope (deg) -0.001 -0.000 0.002 0.005
* ANALIS Positi fros Jt. 7 0.75L 0.50L Jt. 5 Maximum Maximum RESULTS	FOR CON- tion (m) n End 1 1.000 0.750 0.500 0.250 0.0250 +ve Ber- -ve Ber	Dopyright Com BINATION 3 Shear Force (kN) 50.000 60.000 70.000 adding Moment dding Moment	* A N puter a MEMBER Axial 0 -60 MEMBER	A L Y Comp. (kN) 0.000 0.000 0.000 0.000 0.000 0.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000	S I S gn Sez Bend.	RESU vices Li 	LTS mited: dx (num) 0.0 0.0 0.0 0.0 0.0 m from	* JOB : E * DATE: * DATE: * SHEET: 1985 dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 5 joint 5	\$1ope (deg) -0.001 0.000 0.002 0.005
* ANALIS Positi fros Jt. 7 0.75L 0.50L Jt. 5 Maximum Maximum RESULTS	FOR CON- tion (m) n End 1 1.000 0.750 0.500 0.250 0.0250 +ve Ber- -ve Ber	Copyright Com BINATION 3 Shear Force (kN) 50.000 50.000 65.000 70.000 ding Moment	* A N puter a MEMBER Axial 0 -60 MEMBER	A L Y Comp. (kN) 0.000 0.000 0.000 0.000 0.000 0.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000 kn.000	S I S gn Sez Bend.	RESU vices Li 	LTS mited: dx (num) 0.0 0.0 0.0 0.0 0.0 m from	* JOB : F * DATE: * SHEET:	Slope (deg) -0.001 -0.001 0.000 0.002 0.005

0.75L 0.50L	3.750 2.500	-71.2 -33.7		0.000		76.	103 777	0.0	-0 -0		0.015
0.25L	1.250	103.7	11	0.000		20.	576	0.0	-0		-0.016
Jt. 1	0.000	141.2	11	0.000		-132.	500	0.0	0	-0	-0.002
Maximum Maximum	+ve Ben -ve Ben	ding Momen	it 89 it -132	.921 k .500 k	N.m a	t t	2.000m 0.000m	from from	joint joint	1	
RESULTS	FOR COM	BINATION	4 HEMBER								
Positi	ion (m)	Shear For	ce Axial	Comp.	Ben	d . Mos	ent				
from	n End 1	-83.9	(N)	(kN)		(ki	(.m)		· (m		
Jt. 3	4.000	-83.9	949	0.000		-57.	.241	0.0	0		0.003
0.75L	3.000 2.000	-58.9	949 051	0.000	!	14.	. 208 . 656	0.0	-0		-0.002
0.50L	1.000	81.0	251	0.000		60.	. 895	0.0	-0	.1	
Jt. 2	0.000	106.0)51)51	0.000		-101	.447	0.0	-0		
Maximum	+ve Ben	nding Momen	nt 60	.656 J	N.ma	t t	2.000m	from	joint joint	2	
		BINATION									
Posit:	ion (m)	Shear For	rce Axial	Comp	Ben	d.Mo	ment	dx		dy	Slope
fro	m End 1	-66.	kN)	(kN)	!	(k	N.m)	(mm)	(n	m)	(deg)
Jt. 4	3.000	-66.2	236	0.000		-45	.948	0.0			
0.75L	2.250	-51.	236	0.000	:	-1	.896 .905	0.0	0		0.002
0.50L	1.500	43.		0.000			.543		ò		
Jt. 3				0.000			.241	0.0		0.0	
Maximum	+ve Ber	nding Momen	nt 30	.905 1	N.ma	t	1.500m	from	joint	3	
Maximum	-ve Ber	nding Momen	nt -57	.241 1	cN.m a	t	0.000m	from	joint	3	
======	*****	THE EXECUTE					******		* JOB		
<u>:</u>											
:			*		,		P 6 11	, m c	*		13
·											
		Copyright									

RESULTS FOR COMBINATION 4 MEMBER 4
 Position (m)
 Shear Force
 Axial Comp.
 Bend. Moment from End 1 (kN) (kN m)
 (kN m)

 Jt. 5
 4.000
 -116.638
 0.000
 -132.500

 0.75L
 3.000
 -91.638
 0.000
 -28.562
 dx dy Slope (kN) -116.638 -91.638 -66.638 48.362 (mm) (deg) 0.0 -0.011 (mm) 0.0 0.0 0.0 0.006 0.000 50.776 14.914 -0.1 0.003 -0.1 -0.004 0.50L 2.000 0.0 0.25L 1.000 0.0 0.000 Jt. 4 0.000 73.362 -45.948 0.0 -0.002 Maximum +ve Bending Moment 50.776 kN.m at 2.000m from joint 4 Maximum -ve Bending Moment -132.500 kN.m at 4.000m from joint 4

RESULTS	FOR COM	BINATION 4							
		BINATION 4	MEMBER	5					
		n		G	Bend. Mo		dx	dy	Slope
	end 1	Shear Force (kN)	AXIAL	(kN)		ment N.m.)	(mm)	(mm)	(deg)
Jt. 1	1.000	-155.000		0.000	-132		0.0	0.0	-0.002
0.75L	0.750	-143.750		0.000		.156	0.0	0.0	0.004
0.50L	0.500	-132.500		0.000		.625	0.0	0.0	0.008
0.25L	0.250	-121.250		0.000		.906	0.0	-0.1	0.010
Jt. 6	0.000	-110.000		0.000	0	.000	0.0	-0.1	0.011
Mavimum	tve Ren	ding Moment	0	.000 kN	.m at	0.000m	from	joint 6	
Maximum	-ve Ber	nding Moment nding Moment	-132	.500 kN	.m at	1.000m	from	joint 6	
RESULTS	FOR COM	ABINATION 4	MEMBER	6					
Posit	ion (m)	Shear Force	Axial	Comp.	Bend . Mo	ment	dx	dy	Slope
	m End 1	(kN)		(kN)	(k	N.m)	(mm)		(deg)
Jt. 7	1.000	110.000		0.000		.000	0.0		-0.024
0.75L	0.750	121.250		0.000		.906	0.0	-0.2	
0.50L	0.500	132.500		0.000		.625	0.0	-0.1	
0.25L	0.250	143.750		0.000		-156	0.0		
Jt. 5	0.000	155.000		0.000	-132	.500	0.0	0.0	-0.011
Maximum	+ve Ber	nding Moment	0	.000 km	I.m at	1.000m	from	joint 5	
Maximum	-ve Ber	nding Moment	-132	.500 kN	.m at	0.000m	from	joint 5	
			*****	=====			***	******	*******
RESULTS	FOR CO	MBINATION 5	MEMBER	1					
Posit	ion (m)	Shear Force	Axial	Comp.	Bend.Mc	ment	dx	dy	Slope
	m End 1	(kN)		(kN)	(3	N.m)	(mm)	(mm)	(deg)
Jt. 2	5.000	-287.174		0.000	-273	.371	0.0		0.020
0.75L	3.750	-199.674		0.000		.909	0.0		
0.50L	2.500	-112.174		0.000		.814	0.0		
0.25L	1.250	185.326		0.000		8.845	0.0		
				0.000	-132	2.500	0.0	0.0	-0.054
Jt. 1	0.000	272.826		0.000					
Jt. 1		2/2.826 nding Moment	273		i.m at	2.000m	from	joint 1	
Jt. 1 Maximum	+ve Be			.151 ki	i.m at	2.000m 5.000m			
Jt. 1 Maximum	+ve Be	nding Moment		.151 ki					
Jt. 1 Maximum Maximum	+ve Ber	nding Moment nding Moment	-273 	.151 kt	I.m at	5.000m	from	joint 1	
Jt. 1 Maximum Maximum	+ve Ber	nding Moment	-273 	.151 kt	I.m at	5.000m	from	joint 1	seensees BEAM1
Jt. 1 Maximum Maximum	+ve Ber	nding Moment nding Moment	-273	.151 kt	I.m at	5.000m	from	joint 1 * JOB:	seensees BEAM1
Jt. 1 Maximum Maximum	+ve Ber	nding Moment nding Moment	-273	.151 kt	1.m at	5.000m	from	joint 1 * JOB: * DATE:	BEAM1
Jt. 1 Maximum Maximum * * *	+ve Bei	nding Moment nding Moment	-273	.151 kt	SIS I	S.OOOm	from	* JOB: * DATE: *SHEET:	seensees BEAM1
Jt. 1 Maximum Maximum * * * * * * * * * * * * * * * * * *	+ve Bei	nding Moment nding Moment	-273	.151 kh .371 kh	S I S I	SESU	from	* JOB : * DATE: *SHEET:	BEAM1
Jt. 1 Maximum Maximum * * * * * * * * * * * * * * * * * *	+ve Bei	nding Moment nding Moment Copyright Com	-273	. 151 kt . 371 kt	S I S I	SESU	from	* JOB : * DATE: *SHEET:	BEAM1
Jt. 1 Maximum Maximum * * * * * * * * * * * * * * * * * *	TYSE (C):	nding Moment ding Moment Copyright Com BINATION 5 Shear Force	-273	1 A L Y	S I S I	S E S U	from	* JOB : * DATE: *SHEET:	BEAM1
Jt. 1 Maximum Maximum * * * ANAL Pesults Posit frc	YSE (C): FOR CO	nding Moment ding Moment Copyright Com BINATION 5 Shear Force (kN)	-273	1 A L Y	S I S I	S E S U	L T S	joint 1 * JOB: * DATE: *SHEET: 1985	BEAM1 14 Slope
Jt. 1 Maximum Maximum * * * * * * * * * * * * * * * * * *	TYSE (C):	Copyright Com HBINATION 5 Shear Force (kk) -160.927	-273	I A L Y	S I S I ign Serv:	5.000m	from	joint 1 * JOB: * DATE: * SHEET: 1985	BEAM1 14 Slope (deg)

		139.0/3	0.000	114	.775	0.0	-0	. 2	-0.006
0.25L	1.000	194.073	0.000	-51	. 798	0.0	0	. 0	-0.014
Jt. 2	0.000	194.073 249.073	0.000	-273	.371	0.0	0	.0	0.020
Maximum	+ve Ben	ding Moment	114.775 kN	.m at	2.000m	from	joint	2	
Maximum	-ve Ben	ding Moment	-273.371 kN	.m at	0.000m	from	joint	2	
		BINATION 5							
Posit	ion (m)	Shear Force (kN) -169.575 -135.825 -102.075 101.675 135.425	Axial Comp.	Bend:Mo	ment	dx		dy	Slope
fro	m End 1	(kN)	(kN)	(k	N.m)	(mm)	(m	m)	(deg)
Jt. 4	3.000	-169.575	0.000	-148	.305	0.0	0	.0	-0.01
0.75L	2.250	-135.825	0.000	-33	-779	0.0	0	-0	0.00
0.50L	1.500	-102.075	0.000	55	.433	0.0	0	-0	0.00
0.25L	0.750	101.675	0.000	-8	-166	0.0	0	.0	-0.00
Jt. 3	0.000	135.425	0.000	-97	.079	0.0	0	.0	0.005
Maximum	+ve Ben	nding Moment nding Moment	55.433 ki	i.m at	1.500m	from	joint	3	
Maximum 	-ve Ben	nding Moment	-148.305 kM	.m at	3.000m	from	joint	3	
RESULTS	FOR COM	BINATION 5	MEMBER 4						
Posit	ion (m)	Shear Force (kN) -201.049 -146.049 98.951 153.951 208.951	Axial Comp.	Bend. Mo	ment	dx		dy	Slope
fra	m End 1	(kN)	(kN)	(k	N.m)	(mm)	(≖	m)	(deg
Jt. 5	4.000	-201.049	0.000	-132	.500	0.0	0	.0	0.01
0.75L	3.000	-146.049	0.000	41	.049	0.0	-0	. 4	0.02
0.50L	2.000	98.951	0.000	159	.598	0.0	-0	. 6	-0.00
0.25L	1.000	153.951	0.000	33	.147	0.0	~0	. 3	-0.02
Jt. 4	0.000	208.951	0.000	-148	.305	0.0	0	.0	-0.01
							401-4		
	+ve Ben	ding Moment	159.598 ki	I.m at	2.000m	LIOM	Joine	•	
	+ve Ben	ding Moment	159.598 ki -148.305 ki	i.m at i.m at	0.000m	from	joint	4	
Maximum Maximum RESULTS	FOR COM	BINATION 5	MEMBER 5						
Maximum Maximum RESULTS	FOR COM	BINATION 5	MEMBER 5						
Maximum Maximum RESULTS	FOR COM	BINATION 5	MEMBER 5						
Maximum Maximum RESULTS	FOR COM	BINATION 5	MEMBER 5						
Maximum Maximum RESULTS	FOR COM	BINATION 5	MEMBER 5						
Maximum Maximum RESULTS	FOR COM	BINATION 5	MEMBER 5						
Maximum Maximum RESULTS	FOR COM	BINATION 5	MEMBER 5						
Maximum Maximum RESULTS	FOR COM		MEMBER 5						
Maximum Maximum 	FOR COM ion (m) m End 1 1.000 0.750 0.500 0.250	BINATION 5	MEMBER 5 Axial Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Bend. Mo (k -132 -95 -60 -28	ment (N.m) .500 .156 .625 .906	dx (mm) 0.0 0.0 0.0	(m 0 0 0 0	dy m) .0 .2 .4	Slope (deg) -0.054 -0.044 -0.041

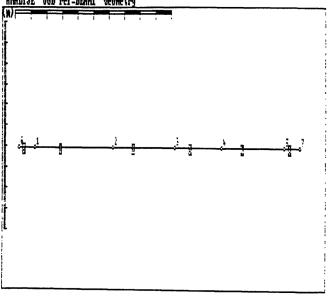
•	•	JOB : BEAM1
*	·	*
•	•	DATE:
•	•	*
•	ANALYSIS RESULTS	*SHEET: 15
*		
* ANALYSE (C)Copyright Compu	ter and Design Services Limited 1	985

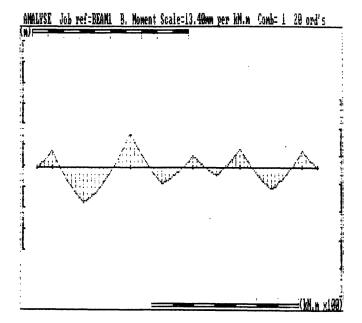
RESULTS FOR COMBINATION 5 MEMBER 6

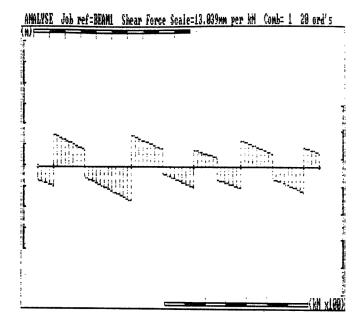
	ion (m.) m. End. 1	Shear Eorce (kN)	Axial Comp. (kN)	Bend.Moment (kN.m)	dx (mm)	dy (mm)	Slope (deg)
Jt. 7	1.000	110.000	0.000	0.000	0.0	0.1	0.000
0.75L	0.750	121.250	0.000	-28.906	0.0	0.1	0.000
0.50L	0.500	132.500	0.000	-60.625	0.0	0.1	0.003
0.25L	0.250	143.750	0.000	-95.156	0.0	0.0	0.007
Jt. 5	0.000	155.000	0.000	-132.500	0.0	0.0	0.013
Mariana	+we 9ee	ding Moment	0.000 km	0.000	_ =	aint E	

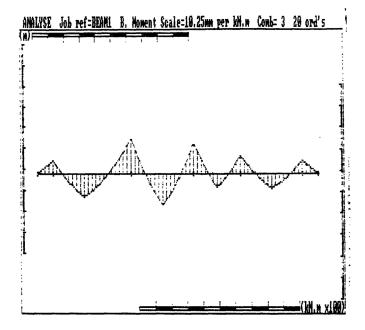
Maximum +ve Bending Moment 0.000 kN.m at 0.000m from joint 5 Maximum -ve Bending Moment -132.500 kN.m at 0.000m from joint 5

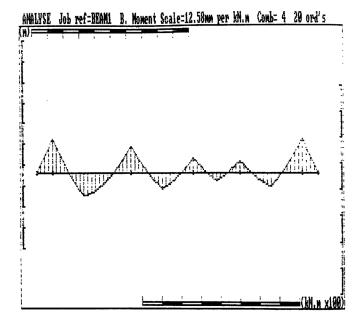
ANALYSE Job ref=BEAM1 Geometry

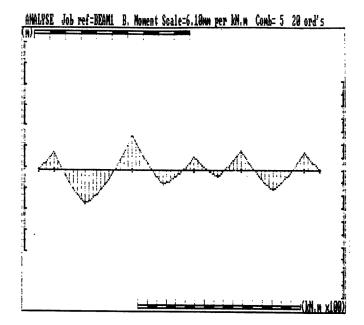












مثال: كما بالرسم كمرة مستمرة وعليها الاحمال المضحة بالرسم (١).



- ندخل احداثيات نقاط المنشأ وكذلك اعضائه وحالة الوصيلات والقطاعات والركائز

كالاتى:

Joint	X(m)	Y(m)
1	0.0	0.0
2	6.3	0.0
3	11.7	0.0
4	18.0	0.0

Member	Jt.1	Jnt.Con	Jt.2	Jnt.Con
1	1	F	2	F
2	2	F	3	F
3	3	F	4	F

– قطاع الكمرة ثابت مقاس ٢٥ سم × ٥٠ سم .

Joint	Support	X Restraint	Y Restraint	A Restraint
1	Fixed	Full	Full	Full
2	Hinge	Full	Full	Zero
3	Hinge	Full	Full	Zero
4	Hinge	Full	Full	Zero

- ندخل اسماء الأحمال (Load case names)

1- Dead Load

- ندخل قيم الاحمال المؤثرة على الاعضاء

⁽١) مهندس / خليل ابراهيم واكد (Design of Reinforced Concrete Beams) حس ٨ه.

Member 1			
Dead Load	UV		40.5 Kn/m
Member 2			
Dead Load	UV		21.3 Kn/m
Dead Load	PV	2.7m	109.6 Kn
Member 3			
Dead Load	UV		36.7 Kn/m

⁻ ندخل حالات التحميل وهي واحدة

Dead Load: 1

- نضغط [٩] ثم [٢] للبدء في الحل فتظهر خطوات الحل تباعا على الشاشة .
 - تظهر بيانات ونتائج المنشأ كالاتي :

Joint	positions	
Jt.	X coord	Y coord
No.	(m)	(m)
1	0.000	0.000
2	6.300	0.000
3	11.700	0.000
4	18.000	0.000
5		

F1 Help	F2 Calc	F To		7 IP	F8 Down	F9 Commnd	F10 Bottom	ESC Escape	NUMLOCK is ON
Member Mem J1. No. no.	Jnt X	n and fixit 1 Coord Y1	Coord		Jnt :	X2 Coord	Y2 Coo		Slope (deg)
1 2	P P P	0.000 6.300 11.700	0.000 0.000 0.000	2	F	6.300 11.700 18.000	0.0 0.0	00 6.300 00 5.400	0.00C 0.00C

Input mode

Fl Help	F2 Calc	F6 Top	£7 Up 1	F8 Down (F9 Commnd	F10 Bottom	Esca Esca		is ON
Table of Section No. 1 2	of Sections Area (cm2) 1250.000	Inertia (cm4) 260416.67	No. of Element	Mem	Memi Lend	tion P: per gth N/P .300 P .400 P .300 P<	No.	Sec.	Modulus E (N/mm2) 21000-000 21000-000 21000-000

F1	F2	P6	F7	F8	F9	F10	ESC	NUMIOCK
Help	Calc	Top	Up	Down	Commad	Bottom	Escap e	is ON
Supports	,							

ZERO

No. Jnt X Restraint Y Restraint A Restraint (kN/mm) FULL Pos (kN/mm) (kNm/rad) FULL FULL 1 2 3 4 1 2 3 4 FULL FULL ZERO FULL PULL ZERO

FULL

FULL

Input mode

Fl F2 F6 F7 F8 F9 F10 ESC NUMLOCK Calc Top Uр Down Commnd Bottom Escape is ON MEMBER LOADS Loads & moments on Member 1 (length = 6.300m slope = 0.000deg)
Ld. Load case Load Start Loaded (kN, kN.m or kN/m Mem No.of

No. 1 2 3	Loads 1 2 1	No. Number	: & name Dead	Type Load UV	Pos(m)	Len(m)	Start val. 40.500	End val.
		Input mode	•					

F1 Help F2 Calc P6 Top P9 F10 ESC NUMLOCK Down Command Bottom Escape Up is ON Loads & moments on Member 2 (length = 5.400m slope = 0.000deg)
Ld. Load case
Load Start Loaded (kM, kM.s or kM/m)
Number & name
Type Pos(s) Lenu(s) Start val.
Dead Load UV
2 1 Dead Load UV
2.700 109.600 MEMBER LOADS No.of Loads 1 2 3 2

Input mode

F1	F2	2	F6	F7	F8	F9	F10	ES.	С	NUMLOCK
Help	Cal	ıc	Тор	Ū₽	Down	Commno	1 Botto	m Esca	pe	15 ON
:525666	FEER									
					6	GIPITAN	PUGINE	caa	- 308 :	
,				* FOR					+ DATE:	
				* CO	MPUTERS				*	
					INP	UT	DAT	A	*SHEET:	5
			ight Compr							
****	医四二苯	4H==####		EFFER	*****		*****	*****	***====	*****
FRAME G	EOME!	ľRY								
No. of	Join	ts = 4								
MEMBERS										
			tails							
			: Y COO:							
No.:no.	: :	(m)	: ()	n) : no	0.: :	(m)	:	(m) :	(m)	: (deg)
			:							
			: 0.0							
2: 2	2:F:	6.300	: 0.0	00 :	3:F:	11.700	: 0	.000 :	5.400	: 0.00
			: 0.0							
	15=RF	********		****		******		######################################	不会证法所证实	******
TABLE O	OF SE	CTIONS								
			Inertia							
			(cm4)							
1	: 1	250.00:	260416.7	: :		:	:			
					94F23D40	*****		### # ###	12545272	***
SUMMARY	OF	MEMBER PI	ROPERTIES							
Member	1 -	3 PRISMA	TIC : Sec	tion	Number	1 : Mod	ulus E	= 21	1000.0 N/	mm2
	***	*======	*****			****		******	*****	******
SUPPORT	rs									

No. of Supports = 4

Number	:	(kN/mm)	:	(kN/mm)	:	Angular Restraint (kN.m/radian)		
1	:		:	PULL	÷	FULL		
2	:	PULL	:	FULL	:	ZERO		
3	:	FULL	:	FULL	:	ZERO		
4	•	FULT.		FIII.I.		ZERO		

APPLIED LOADS AND MOMENTS
MEMBER 1
LOAD CASE :LOAD: POSITION : LOAD/MOMENT No: Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV: : : 40.500 kN/m:
NEMBER 2
LOAD CASE :LOAD: POSITION :LOAD/MOMENT No:Name :Type: Start: Length: Start Value: End Value
1: Dead Load: UV: : : 21.300 kN/m: 1: '': PV: 2.700 m: : 109.600 kN:
POR DATE: 9-92 COMPUTERS
* * * * * * * * * * * * * * * * * * *
POR DATE: 9-92 COMPUTERS IN PUT DATA SHEET: 6 ANALYSE (C)Copyright Computer and Design Services Limited 1985
POR DATE: 9-92 COMPUTERS IN PUT DATA SHEET: 6
POPTIAN ENGINEERS OF JOB : M1 POR DATE: 9-92 COMPUTERS IN PUT DATA SHEET: 6 ANALYSE (C)Copyright Computer and Design Services Limited 1985
POR DATE: 9-92 COMPUTERS IN PUT DATA SHEET: 6 ANALYSE (C)Copyright Computer and Design Services Limited 1985 APPLIED LOADS AND HOMENTS continued MEMBER 3 LOAD CASE :LOAD: POSITION : LOAD / HOHENT NO: Hame :Type: Start: Length: Start Value: End Value
POR DATE: 9-92 COMPUTERS IN PUT DATA SHEET: 6 ANALYSE (C)Copyright Computer and Design Services Limited 1985 APPLIED LOADS AND MOMENTS continued MEMBER 3 LOAD CASE :LOAD: POSITION : LOAD/HOHENT NO: Hame :Type: Start: Length: Start Value: End Value 1: Dead Load: UV: : : 36.700 kM/m:
PORT OF STATE OF STAT

Dead Load:1.000

1:

	E A C C C C C C C C C C C C C C C C C C	三年三年月七日本日三台日本三元:
•	* ****** EGYPTIAN ENGINEERS **	* JOB : W1
*	*	*
•	* FOR	* DATE: 9-92
•	* COMPUTERS	*
•	* ANALYSIS RESULTS	*SHEET: 7
*		
* ANALYSE (C)Copyright Comp	ter and Design Services Limited 1	985

RESULTS FOR COMBINATION 1

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0000	0.000	130.611	140.329
2	0.00	0.00	0.0004	0.000	230.198	0.000
3	0.00	0.00	~0.0010	0.000	259.506	0.000
4	0.00	0.00	0.0040	0.000	90.665	0.000

Summation of Forces and Moments

Member Loads	Px (kN) 0.000	Py (kN) -710.980	Mo (kN.m) -6258.771
Joint Loads	0.000	0.000	0.000
Reactions	0.000	-710.980	-6258.771
Summation	0.000	710.980	6258.771
Summation	0.000	0.000	0.000

Maxima for Member 1

Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----

```
Comb. (Abs. Max.)(Compression) (Tension) Max.+ve
                        s. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m)
130.611 0.000 0.000 70.278 3.225 -140.329 0.000
    1
Maxima for Member 2
Load Shear (kN)
                                                  Maximum Axial (kN) <----- Bending Moment (kN.m) ----->
Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 -118.962 0.000 0.000 66.436 2.700 -157.122 5.400
                         ------
Maxima for Member 3
Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) ----->
Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m)
                  140.545 0.000 0.000 111.991 3.930 -157.122 0.000
                                      _____
RESULTS FOR COMBINATION 1 MEMBER 1
     Position (m) Shear Force Axial Comp. Bend.Homent dx (from End i (kH) (kH) (kN.m) (m) (n.m) (n.m)
                                                                                                                                                   dx
(mm)
0.0
                                                                                                                                                                               dy Slope
                                                                                                                                                                            (man)
                                                                                                                                                                                              (deg)
                                                                                                                                                                           (man)
0.0
Jt. 2 6.300
                                                                                                                                                                                              0.021
0.75L 4.725
0.50L 3.150
0.25L 1.575
                                                                                                                                                                           -2.0 0.087
                                                                                                                                                                          -3.3 -0.005
-1.8 -0.089
Jt. 1 0.000
                                                                                                                                                                           0.0
                                                                                                                                                                                            0.000
Maximum +ve Bending Moment 70.278 kN.m at 3.225m from joint 1 Maximum -ve Bending Moment -140.329 kN.m at 0.000m from joint 1
                                                                            * ****** EGYPTIAN ENGINEERS ** * JOB : W1
                                                                                           -----
                                                                           * POR
                                                                                                                                                                 * DATE: 9-92
                                                                            * COMPUTERS
                                                                                                                                                                  *---
                                                                            * ANALYSIS RESULTS *SHEET: 8
        ANALYSE (C)Copyright Computer and Design Services Limited 1985
 RESULTS FOR COMBINATION 1 MEMBER 2

        Position (m)
        Shear Force from End 1
        Axial Comp. (kN)
        Bend. Moment (kN, m)
        dx (kN, m)

        1. 3
        5.400
        -118.962
        0.000
        -157.122
        0.0

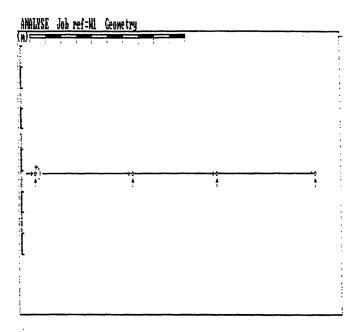
        .75L
        4.050
        -90.207
        0.000
        -15.933
        0.0

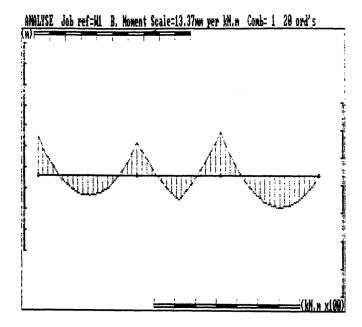
        .50L
        2.700
        -61.452
        0.000
        2.026
        0.0

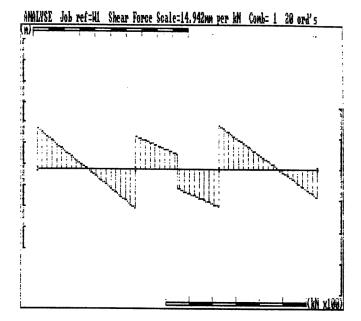
        .25L
        1.350
        76.903
        0.000
        2.026
        0.0

        -2
        0.000
        121.204
        0.0
        0.00

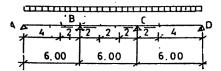
                                                                                                                                                                              dy Slope
                                                                                                                                                                            (mm)
                                                                                                                                                                                         (deg)
                                                                                                                                                                           0.0 -0.055
 0.75L
                                                                                                                                                                           -0.5
                                                                                                                                                                                             0.063
 0.50%
                                                                                                                                                                           -1.6
                                                                                                                                                                                             0.008
 0.25L
                                                                                                                                                                           -0.8 -0.059
                                                                                                                                                                             0.0
                                                                                                                                                                                            0.021
Maximum +ve Bending Moment 96.436 kN.m at 2.700m from joint 2 Maximum -ve Bending Moment -157.122 kN.m at 5.400m from joint 2
RESULTS FOR COMBINATION 1 MEMBER 3
     Position (m) Shear Force Axial Comp. Bend.Moment from End 1 (kN) (kN) (kN.m) (kN.m) (4.300 -90.665 0.000 0.000
                                                                                                                                                   dx
(num)
0.0
                                                                                                                                                                               dy Slope
                                                                                                                                                                           (mm) (deg)
0.0 0.228
 Jt. 4
 0.75L
                      4.725
                                                   -32.863
                                                                                                                   97.278 0.0
103.517 0.0
18.717 0.0
                                                                                         0.000
 0.50L
                    3.150
                                                 24.940
0.25L
                                                                                         0.000
                                                                                                                                                                           -6.6 -0.043
              0.000
                                                       82.742
                                                                                         0.000
                                                                                                                                                                           -3.6 -0.157
0.0 -0.055
Jt. 3
                                                   140.545
                                                                                         0.000
                                                                                                                   -157.122
                                                                                                                                                     0.0
Maximum +ve Bending Moment 111.991 kN.m at Maximum -ve Bending Moment -157.122 kN.m at
                                                                                                                          3.830m from joint 3
0.000m from joint 3
```







مثال: كما بالرسم كمرة مستمرة وعليها الأحمال المضمحة بالرسم (١) .



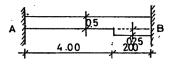
- ندخل احداثيات نقاط المنشأ وكذلك أعضائه وحالة الومسلات والقطاعات والركائز

كالاتى:

Joint	X(m)	Y(m)
1	0.0	0.0
2	6	0.0
3	12	0.0
4	18	0.0

Member	Jt.1	Jnt.Con	Jt.2	Jnt.Con
1	1	F	2	F
2	2	F	3	F
3	3	F	4	F

قطاع الكمرة كما بالرسم ابعاده ٢٥ سم × ٥٥/٥٠ سم



[.] ۲۲۸ ص (Design of Reinforced Concrete Beams) عن ۲۲۸ مهندس /خلیل ابراهیم واکد

Joint	Support	X Restraint	Y Restraint	A Restraint
1	Hinge	Full	Full	Zero
2	Hinge	Full	Fuli	Zero
3	Hinge	Full	Full	Zero
4	Hinge	Full	Full	Zero

- نبخل اسماء الاحمال (Load case names)

1- Dead Load

- ندخل قيم الاحمال المؤثرة على الاعضاء ٢ ، ٢ ، ٣

Dead Load UV 40 Kn/m

- ندخل حالات التحميل وهي واحدة

Dead Load: 1

- نضغط [٩] ثم [٧] للبدء في الحل فتظهر خطوات الحل تباعا على الشاشة .

- تظهر بيانات ونتائج المنشأ كالاتي :

Joint	positions		
Jt.	X coord	Y	coord
No.	(m)		(m)
1	0.000		0.000
2	6.000		0.000
3	12.000		0.000
4	18.000		0.000
5			

P: He:		F2 Cal			F6 Top	P7 Up	F8 Dow		F9 Commund	F1 Bott		ESC Escape		NUMLOCK is ON
	J1.	Jnt con P F	X1	and fi Coord (m) 0.000 6.000			con F P	x2	Coord (m) 6.000 12.000		Coc (m) 0.0	00	(m) (m) 6.000 6.000	Slope (deg) 0.000 0.000 0.000

Input mode

F1	F2	F6	F7	F8	F9	F10	ESC	NUMLOCK
Help	Calc	Top					Escape	
								is ON

Table of Sections
Section Area Inertia No. of
No. (cm2) (cm4) Elements
1 1250.000 260416.67 1
2 1875.000 878906.3 1

Elements of Section no. 1 Elem Y-dim B-dim D-dim No. (mm) (mm) (mm) 1 -250.000< 250.000 500.000

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Calc Down Commnd Bottom Escape is ON Help Top Up Table of Sections Section Area Inertia No. of

 Section
 Area
 Inertia
 No. of

 No.
 (cm2)
 (cm4)
 Elements

 1
 1250.000
 250416.67
 1

 2
 1875.000
 878906.30
 1

 3
 1
 1

Elements of Section no. 2
Elem Y-dim B-dim D-dim
No. (mm) (mm) (mm)
1 -375.000 250.000 750.000

878906.33

Input mode

3

1875.000

0.000

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK
Down Command Bottom Escape is ON Help Calc Top Up Table of Sections Member Section Properties Section Area Inertia No. of Mem Member No. Sec. Modulus E (cm4) 260416.67 Length N/P Seg No. No. (cm2) Elements No. (N/mm2) 1250.000 1 1 6.000 N 2 21000.000

2

3

6.000 N

6.000 N 2

3

21000.000

21000.000

	nt(s) of		
Seg.	Segment		
No.	Length	End1	End2
1	4.000	1	1
2	2.000	2	2

Fl Help	F2 Calc	F6 Top	g7 Up	F8 Down	F9 Command	F10 Bottom	ESC Escape	NUMLOCK is ON
Table o	of Sections			Me	mber Se	ction P	roperties	
Section	n Area	Inertia	No. of	He	m Hem	ber	No. Sec.	Modulus E
No.	(cm2)	(cm4)	Element	s No	. Len	gth N/P	Seq No.	(N/mm2)
1	1250.000	260416.67	1		1 6	.000 N	ž	21000.000
2	1875.000	878906.30	1		2 6	.000 N	3	21000.000
3	0.000				36	.000 N	2	21000.000
3			-					

Input mode

F1	F2	F6	P7	F8	F9	F10	ES		NUMLOCK
Help	Calc	Top	Up	Down	Commnd	Bottom	Esca		is ON
Section No.	Sections Area (cm2) 1250.000 1875.000 0.000	Inertia (cm4) 260416.67 878906.30	No. of Element 1	Me: No	m Memi - Lend 1 6 2 6	ction Prober gth N/P .000 N .000 N	No.	Sec.	Modulus E (N/mm2) 21000.000 21000.000 21000.000

Segment(s) of Member 3
Seg. Segment Section No.
No. Length End1 End2
1 2.000< 2 2

	fl elp	F2 Calc	7 F8 Ip Down	F9 Commnd	F10 Bottom	ESC Escape	NUMLOCK is ON
	Jnt Pos 1<	X Restraint (kN/mm) · FULI FULI	(kNm/	raint rad) · ZERO ZERO			
3 4	3 4	FULI FULI		ZERO ZERO			

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Command Bottom Escape is ON

Global load case names

No. Load Case Name
1 Dead Load
2

Input mode

NUMLOCK F2 P6 F7 FS F9 F10 ESC is ON Down Command Bottom Escape Help Calc Top Up Global load case names Load Case Name Dead Load Input mode F6 F7 P8 F9 F10 ESC NUMLOCK F2 Top Up Down Commnd Bottom Escape is ON Loads & moments on Member 1 (length = 6.000m slope = 0.000deg)
Ld. Load case Load Start Loaded (kN, kN.m or kN/m)
No. Number & name Type Pos(m) Len(m) Start val. End val.
1 1< Dead Load UV 40.000 MEMBER LOADS No.of Loads 1 ī ž

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Down Commnd Bottom Escape Top Up MEMBER LOADS Mem No.of Loads 1 2

3 1

F1	F2		F6	F7	F8	F9	F10	ESC	NUMLOCK
Help	Calc		Top	Up	Down	Commnd	Bottom	Escape	is ON
	No.of Loads 1 1	Ld.	Load case Number & n	ame	Load	Start	Loaded	1 (kN, 1	e = 0.000deg) kN.m or kN/m) al. End val. 000

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Command Bottom Escape is ON

Safety Factors for Combination 1 Load Case Safety Number and name factor 1 Dead Load 1.000<

Input mode

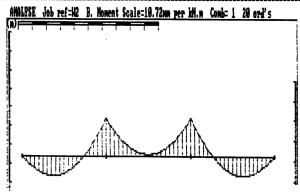
F1 Help	F2 Calc	F6 Top	F7 Up	F8 Down	F9 Commad	F10 Bottom	ESC Escape		NUMLOCK is ON
:			:					JOB : 1	12
•			*					DATE:	
•			:	INP	UT	DATA	:	SHEET:	9
FRAME G No. of MEMBERS	EOMETRY Joints = 4	yright Compu	27=44	******	92667ZI	Bergite	岩田平 東で出	********	***************************************
Mem:Jt.	:C: X coo	rd : Y coor	d :Jt	.:C: X	Coord :	Y Coo	rd: I	ength:	Slope
No.:no.		m) : (m :) :no		(m) :		m) : :	(m) :	(deg)
2: 2	:F: 0.0 :F: 6.0 :F: 12.0	00 : 0.00	0: 0: 0	3:F: 1	6.000 : 2.000 : 8.000 :	0.0	00 : 00 : 00 :	6.000 : 6.000 : 6.000 :	0.00 0.00 0.00

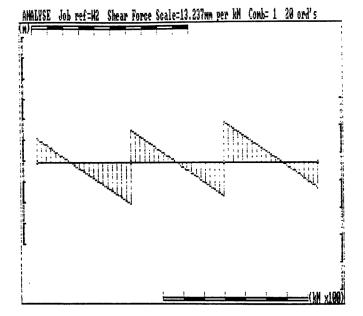
TABLE OF SECTIONS

Section Area: Inertia: Rectangular Elements (if specified) Number Cam2 : (Cm4 : No. D (mm): B (mm): Y (mm)															
1 : 1250.00: 260416.7: 1: 500.00: 250.00: -250.00 2 : 1875.00: 878906.3: 1: 750.00: 250.00: -250.00 2 : 1875.00: 878906.3: 1: 750.00: 250.00: -375.00 2 : 1875.00: 878906.3: 1: 750.00: 250.00: -375.00 2 : 1875.00: 878906.3: 1: 750.00: 250.00: -375.00 2 : 1875.00: 878906.3: 1: 750.00: 250.00: -375.00 2 : 1875.00: 878906.3: 1: 750.00: 250.00: -375.00 SUPHARY OF MEMBER PROPERTIES Member I NON PRISHARTIC : Modulus E = 21000.0 N/mm2 Segment 1 Length = 4.000 m: End 1 Section No. = 1 : End 2 Section No. = 1 : 2 : 7 : 7 : 2 : 7 : 7 : 2 : 7 : 7 : 2 : 7 : 7	Number	: (cm2):		(cm4):	: No:	D (mm	1): B	(um)	: .	spec Y (m	m) :111	eaj			
2 : 1875.00: 878906.3: 1: 750.00: 250.00: -375.00	1	: 1250.00:	260	416.7	: 1:	500.0	00: 2	50.00	:	250.	00				
SUPHARY OF MEMBER PROPERTIES	2	: 1875.00:	878	906.3	::	750.0	00: 2	50.00	:	375.	00				
SUMMARY OF MEMBER PROPERTIES		::			::		:		:						
Segment 1 Length = 4.000 m: End 1 Section No. = 1 : End 2 Section No. = 1 ' 2 ' 2.000 m: ' ' ' 2 : ' ' 2 ' 2 ' 2.000 m: ' ' ' 2 : ' ' ' 2 ' 2 ' 2 ' 2.000 m: ' ' ' ' 2 : ' ' ' ' 2 ' 2 ' 2 ' 2 ' 2						.====	*****		****	***			272		
Segment 1 Length = 4.000 m: End 1 Section No. = 1 : End 2 Section No. = 1 ' 2 ' 2.000 m: ' ' ' 2 : ' ' 2 ' 2 ' 2.000 m: ' ' ' 2 : ' ' ' 2 ' 2 ' 2 ' 2.000 m: ' ' ' ' 2 : ' ' ' ' 2 ' 2 ' 2 ' 2 ' 2						E = :	21000.0	N/mm	2						
														_	
Member 2 NON PRISMATIC : Modulus E = 21000.0 N/mm2	• • •	2	2.	.000 m	: ··	,			2:	• •		••	••	•	2
2															
Hember 3 NON PRISMATIC : Modulus E = 21000.0 N/mm2 Segment 1 Length = 2.000 m: End 1 Section No. = 2 : End 2 Section No. = 2	Segment	1 Length	× 2.	.000 m	: End	1 Sec	tion No	. •	2 :	End	2 S	ection	No.	-	2
Hember 3 NON PRISMATIC : Modulus E = 21000.0 N/mm2 Segment 1 Length = 2.000 m: End 1 Section No. = 2 : End 2 Section No. = 2	::	3	2.	.000 m .000 m	: ::	:	: ::		1:	::		::	::		2
SUPPORTS No. of Supports = 4 Joint : X Restraint : Y Restraint : Angular Restraint Number : (kN/mm) : (kN/mm) : (kN.m/radian)															
SUPPORTS No. of Supports = 4 Joint : X Restraint : Y Restraint : Angular Restraint Number : (kN/mm) :	Segment	1 Length	= 2.	.000 m	: End	1 Sec	tion No		2:	End	2 S	ection	No,	-	2
SUPPORTS No. of Supports = 4 Joint : X Restraint : Y Restraint : Angular Restraint Humber : (kN/mm) : (kN/mm) : (kN-m/radian) 1 : FULL : FULL : ZERO 2 : FULL : FULL : ZERO 3 : FULL : FULL : ZERO 4 : FULL : FULL : ZERO 4 : FULL : FULL : ZERO 4 : FULL : FULL : ZERO *															
Joint: X Restraint: Y Restraint: Angular Restraint Number: (kN/mm): (kN/mm): (kN.mx/adian) 1 : FULL: FULL: ZERO 2 : FULL: FULL: ZERO 3 : FULL: FULL: ZERO 4 : FULL: FULL: ZERO 4 : FULL: FULL: ZERO															
Joint: X Restraint: Y Restraint: Angular Restraint Number: (kN/smm): (kN/smm): (kN/smm): (kN/smm): 1 : FULL: FULL: ZERO 2 : FULL: FULL: ZERO 3 : FULL: FULL: ZERO 4 : FULL: FULL: ZERO 4 : FULL: FULL: ZERO • JOB: M2 • JOB: M2 • ANALYSE (C)Copyright Computer and Design Services Limited 1985 APPLIED LOADS AND MOMENTS MEMBERS 1 - 2 LOAD CASE: LOAD: POSITION: LOAD/MOMENT No: Mame: 'Type: Start: Length: Start Value: End Value: LOAD CASE: LOAD: POSITION: LOAD/MOMENT No: Name: 'Type: Start: Length: Start Value: End Value: LOAD CASE: LOAD: POSITION: LOAD/MOMENT No: Name: 'Type: Start: Length: Start Value: End Value: End Value: Start Value: End Value: Indicated the Combinations LOAD CASE: Combination Number LOAD CASE: Combination Number LOAD CASE: Combination Number															
Number: (kN/mm): (kN/mm): (kN.aradian) 1	No. of S	upports =	4												
1 : FULL : FULL : ZERO 2 : FULL : FULL : ZERO 3 : FULL : FULL : ZERO 4 : FULL : FULL : ZERO 4 : FULL : FULL : ZERO	Joint	: X Restra	aint :	: Y Re	strai	nt : A	ngular	Restr	ain	t					
1 : FULL : FULL : ZERO 2 : FULL : FULL : ZERO 3 : FULL : FULL : ZERO 4 : FULL : FULL : ZERO	Number	: (kN/s	Den) :	: (kn/mm):	(kN.g	/radi	an)					
* JOB: MZ * DATE: * INPUT DATA *SHEET: 10 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * APPLIED LOADS AND MOMENTS * MEMBERS 1 - 2 LOAD CASE :LOAD: POSITION :LOAD/MOMENT No: Name :Type: Start: Length: Start Value: End Value: LOAD CASE :LOAD: POSITION :LOAD/MOMENT NO: Name :Type: Start: Length: Start Value: End Value: LOAD CASE :LOAD: POSITION :LOAD/MOMENT NO: Name :Type: Start: Length: Start Value: End Value: LOAD CASE :COMDINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS LOAD CASE : Combination Number No: Name : 1	1	: FULL	:	: : F	ULL	<u>:</u>	ZER	0							
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DOB: W2 DATE: INPUT DATA *SHEET: 10 AMALYSE (C)Copyright Computer and Design Services Limited 1985 APPLIED LOADS AND MOMENTS MEMBERS 1 - 2 LOAD CASE: LOAD: POSITION: LOAD / NOMENT No: Name :Type: Start: Length: Start Value: End Value: Dead Load: UV: : : 40.000 kN/m: MEMBERS 1 LOAD CASE: LOAD: POSITION: LOAD / NOMENT NO: Name :Type: Start: Length: Start Value: End Value: 1: Dead Load: UV: : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS NO: Name : 1 LOAD CASE: Combination Number														,	
* IN PUT DATA *SHEET: 10 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **APPLIED LOADS AND MOMENTS MEMBERS 1 - 2 LOAD CASE :LOAD: POSITION :LOAD/MOMENT No: Name :Type: Start: Length: Start Value: End Value: LOAD CASE :LOAD: POSITION :LOAD/MOMENT NO: Name :Type: Start: Length: Start Value: End Value: LOAD CASE :LOAD: POSITION :LOAD/MOMENT NO: Name :Type: Start: Length: Start Value: End Value: 1: Dead Load: UV : : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS NO: Name : 1	*														
* INPUT DATA *SHEET: 10 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **APPLIED LOADS AND HOMENTS **MEMBERS 1 - 2 LOAD CASE :LOAD: POSITION :LOAD/MOMENT No: Name :Type: Start: Length: Start Value: End Value: LOAD CASE :LOAD: POSITION :LOAD/MOMENT NO: Name :Type: Start: Length: Start Value: End Value: **Type: Start: Length: Start Value: End Value	·														
* ANALYSE (C)Copyright Computer and Design Services Limited 1985 APPLIED LOADS AND HOMENTS MEMBERS 1 - 2 L O A D C A S E :LOAD: P O S I T I O N :L O A D / M O M E N T NO : Name :Type: Start: Length: Start Value: End Value: L O A D C A S E :LOAD: P O S I T I O N : L O A D / M O M E N T NO : Name :Type: Start: Length: Start Value: End Va	•				:										
* ANALYSE (C)COPYLIGHT COMPUTER and Design Services Limited 1985 APPLIED LOADS AND MOMENTS MEMBERS 1 - 2 L O A D C A S E :LOAD: P O S I T I O N : L O A D / M O M E N T NO : Name :Type: Start: Length: Start Value: End Value: 1: Dead Load: UV : : : 40.000 kN/m: MEMBER 3 L O A D C A S E :LOAD: P O S I T I O N : L O A D / M O M E N T NO : Name :Type: Start: Length: Start Value: End Value: 1: Dead Load: UV : : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS NO : Name : 1	•						D 11 T	D		_					
APPLIED LOADS AND MOMENTS MEMBERS 1 - 2 L O A D C A S E :LOAD: P O S I T I O N :L O A D / M O M E N T NO: Name :Type: Start: Length: Start Value: End Value: L O A D C A S E :LOAD: P O S I T I O N : L O A D / M O M E N T NO: Name :Type: Start: Length: Start Value: End Valu	:				•	IN		_	A I					10	
MEMBERS 1 - 2 LOAD CASE :LOAD: POSITION :LOAD / HOMENT No: Name :Type: Start: Length: Start Value: End Value 1: Dead Load: UV: : : 40.000 kN/m: MEMBER 3 LOAD CASE :LOAD: POSITION : LOAD / HOMENT No: Name :Type: Start: Length: Start Value: End Value 1: Dead Load: UV: : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS No: Name : 1	• • ANALY	/SR (C)Cop	vriah	t Comp											
LOAD CASE :LOAD: POSITION :LOAD / NOMENT No: Name :Type: Start: Length: Start Value: End Value: 1: Dead Load: UV: : : 40.000 kN/m: HEMBER 3 LOAD CASE :LOAD: POSITION : LOAD / NOMENT No: Name :Type: Start: Length: Start Value: End Value: 1: Dead Load: UV: : : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS No: Name : 1		********		2222X	uter	and De	sign Se	rvic	es L	imit	ed 1	 1985			
I: Dead Load: UV: : : 40.000 kN/m: MEMBER 3 L O A D C A S E :LOAD: P O S I T I O N : L O A D / M O M E N T No : Name :Type: Start: Length: Start Value: End Value 1: Dead Load: UV: : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS No : Name : 1		********		2222X	uter	and De	sign Se	rvic	es L	imit	ed 1	 1985			
I: Dead Load: UV: : : 40.000 kN/m: MEMBER 3 L O A D C A S E :LOAD: P O S I T I O N : L O A D / M O M E N T No : Name :Type: Start: Length: Start Value: End Value 1: Dead Load: UV: : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS No : Name : 1	APPLIED	LOADS AND		2222X	uter	and De	sign Se	rvic	es L	imit	ed 1	 1985			
TI Dead Load: UV: : : 40.000 kN/m: MEMBER 3 L O A D C A S E :LOAD: P O S I T I O N : L O A D / M O M E N T No : Name :Type: Start: Length: Start Value: End Value 1: Dead Load: UV: : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS L O A D C A S E : Combination Number No : Name : 1	APPLIED MEMBERS	LOADS AND	MOME	NTS	outer	and De	sign Se	ervice	es L	imit	ed 1	1985			
MEMBER 3 L O A D C A S E :LOAD: P O S I T I O N : L O A D / H O M E N T NO : Name :Type: Start: Length: Start Value: End Value 1: Dead Load: UV : : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS L O A D C A S E : Combination Number NO : Name : 1	APPLIED MEMBERS	LOADS AND	MOME	NTS	outer	and De	sign Se	ervice	es L	imit	ed 1	1985			
No : Name :Type: Start: Length: Start Value: End Value: 1: Dead Load: UV : : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS L O A D C A S E : Combination Number No : Name : 1	APPLIED MEMBERS L O A D No : Nam	LOADS AND 1 - 2 CASE	HONE:	NTS OAD: P	outer O S	I T I	sign Se	: L	O A	D /	M (Valu	1985 D M E N	T Er	id V	'alu
No : Name :Type: Start: Length: Start Value: End Value: 1: Dead Load: UV : : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS L O A D C A S E : Combination Number No : Name : 1	APPLIED MEMBERS LOAD No: Nam	LOADS AND 1 - 2 C A S E	MONEI	OAD: P	outer O S	I T I	o N	: L	O A St	D /	M (Valu	0 M E N	T Er	id V	'alu
1: Dead Load: UV : : : 40.000 kN/m: COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS L O A D C A S E : Combination Number No : Name : 1	APPLIED MEMBERS L O A D No : Nas	LOADS AND 1 - 2 C A S E	HONE:	NTS OAD: F	outer	I T I	O N	: L	O A St	D /	M (Value	D M E N	T Er	id V	'alu
COMBINATIONS : TABULATED VALUES OF PARTIAL SAFETY FACTORS L O A D C A S E : Combination Number 1 : 1 :	APPLIED MEMBERS L O A D No : Nam 1: MEMBER 3 L O A D No : Nam	LOADS AND 1 - 2 C A S E Dead Lo	MOME!	OAD: P	O S St	ITI	O N Lengt	: L	O A St	D /	M (Value	1985 D M E N	T En	id V	'alu
	APPLIED MEMBERS L O A D No : Nam 1: MEMBER 3 L O A D No : Nam 1:	LOADS AND 1 - 2 C A S E Dead Lo	MONE!	OAD: P	O S St	I T I art:	O N Lengt	: L	O A St	D /art	M (Value	D M E N	T En	ad V	'alu
	APPLIED MEMBERS L O A D No : Nam 1: MEMBER 3 L O A D No : Nam 1:	LOADS AND 1 - 2 C A S E Dead Lo	MONE!	OAD: P	O S St	I T I art:	O N Lengt	: L	O A St	D /art	M (Value	D M E N	T En	ad V	'alu
	APPLIED MEMBERS L O A D NO : Nam: 1: MEMBER 3 L O A D NO : Nam 1: 1: COMBINAT	LOADS AND 1 - 2 C A S E BEE Dead Lo C A S E Dead Lo C A S E	LC:Ty	OAD: Pype:	O S St	ITI	O N Lengt	: L	O A St	D /art	M (Value	D M E N	T En	ad V	'alu
	APPLIED MEMBERS L O A D NO : Nam: 1: MEMBER 3 L O A D NO : Nam 1: 1: COMBINAT	LOADS AND 1 - 2 C A S E BEE Dead Lo C A S E Dead Lo C A S E	LC:Ty	OAD: Pype:	O S St	ITI	O N Lengt	: L	O A St	D /art	M (Value	D M E N	T En	ad V	'alu

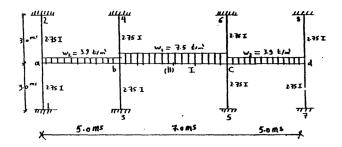
•			•	********			* JOB : 1	1 2
·			*				* DATE:	
•			•				*	
•			* ANAL	YSIS R	ESU	LTS	*SHEET:	11
* ANALYSE	(C)Copyr	ight Compu	ter and De	esign Servic	es Lis	ited 1	985	
	78768F20	******	EEDERESSES					
RESULTS FOR	COMBINA	TION 1						
Joint Diepl	acements	and React	ions					
Joint No.	dx(mm)	dy(non)	0(rad)	Px (kN)	Py ()	cN) M	(kN.m)
1	0.00	0.00	-0.0033	0.00	Ó	88.9	909	0.000
2	0.00	0.00	0.0013	0.00	0	271.0	91	0.000
3	0.00	0.00	-0.0013	0.00	0	271.0	91	0.000
4	0.00	0.00	0.0033	0.00 0.00 0.00	0	88.9	909	0.000
summation o	f Porces							
		Px (kN)	Pv (kN)	Mo (kN.	m)			
fember Load	8	0.000	-720.000	-6480.0	00			
Joint Loads		0.000	0.000	Mo (kN.) -6480.0	00			
Reactions								
Summation		0.000	720.000	-6480.0 6480.0	00			
Summation		0.000	0.000	0.0	00			
				0.0				
Maxima for								
Maxima for Load Shear	Member 1	Maximum A	xial (kN)	< B	ending	Mome:	nt (kN.m)	
Maxima for Load Shear Comb. (Abs.	(kN)	Maximum A	xial (kN)	< B	ending	(m) 1	Maxve	Pos. /
Maxima for Load Shear Comb. (Abs.	(kN)	Maximum A	xial (kN)	< B	ending	(m) 1	Maxve	Pos. /
Maxima for Load Shear Comb. (Abs.	(kN) Max.)(0 51.091	Maximum A	xial (kN)	< B	ending	(m) 1	Maxve	Pos. (
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for	(kN) Max.)(C 51.091 Member 2	Maximum A	uxial (kN) (Tension 0.000	< B a) Max.+ve 98.810	ending Pos.	(m) i .223	Maxve -186.547	Pos. (1
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for Load Shear	(kN) Max.)(C 51.091 Member 2	Maximum A	xial (kN) (Tension 0.000	< B n) Max.+ve 0 98.810	ending Pos. 2	(m) 1 .223	Maxve -186.547	Pos. (1
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for Load Shear Comb. (Abs.	(kN) Max.)(C 51.091 Member 2 (kN) Max.)(C	Maximum A Compression 0.000	xial (kN) (Tensior 0.000 xxial (kN) (Tensior	< 8 a) Max.+ve b) 98.810	ending Pos. 2. ending	(m) i 223 	Maxve -186.547 	Pos. (1
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for Load Shear Comb. (Abs. 1 1	(kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000	Maximum A Compression 0.000 Maximum A Compression 0.000	xial (kN) (Tensior 0.000 xxial (kN) (Tensior	< B n) Max.+ve 0 98.810	ending Pos. 2. ending	(m) i 223 	Maxve -186.547 	Pos. (1
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for Load Shear Comb. (Abs. 1	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3	Maximum A	xial (kN)) (Tension 0.000 xxial (kN)) (Tension 0.000	< B (B (B (B (B (B (B (ending Pos. 2 ending Pos. 0	(m) 1 .223 .223 .3 Momen (m) 1	Maxve -186.547 	Pos. (1 0.00
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for Load Shear Comb. (Abs. 1 1 Maxima for Load Shear	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3	Maximum A	uxial (kN) (Tensior 0.000 uxial (kN) (Tensior 0.000	< B (B (B (B (B (B (B (ending Pos. 2 ending Pos. 0	(m) 1 .223 	Maxve -186.547 	Pos. (r 6.00
daxima for coad Shear comb. (Abs. 1 -1 daxima for coad Shear comb. (Abs. 1 daxima for coad Shear comb. (Abs. 6 daxima for coad Shear comb. (Abs. 6 daxima for comb. 6 daxima fo	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3	Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) () (Tension 0.00(uxial (kN) () (Tension 0.00(uxial (kN)	< P	ending Pos. 2 ending Pos. 0	(m) 1 .223 	Maxve -186.547 	Pos. (1 6.0)
daxima for coad Shear comb. (Abs. 1 -1 daxima for coad Shear comb. (Abs. 1 daxima for coad Shear comb. (Abs. 6 daxima for coad Shear comb. (Abs. 6 daxima for comb. 6 daxima fo	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3	Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) () (Tension 0.00(uxial (kN) () (Tension 0.00(uxial (kN)	< B (B (B (B (B (B (B (ending Pos. 2 ending Pos. 0	(m) 1 .223 	Maxve -186.547 	Pos. (1 6.0)
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for Load Shear Comb. (Abs. 1 1 Maxima for Load Shear Comb. (Abs. 1 1 RESULTS FOR	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3 (kN) Max.)(C 51.091	Maximum A compression 0.000 Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) (Tensior 0.00(uxial (kN) (Tensior 0.00(uxial (kN) () (Tensior 0.00(<	ending Pos. 2 ending Pos. 0	(m) 1.223 g Momen (m) 1.000 g Momen (m) 2.777	Maxve -186.547 	Pos. (1 0.0)
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for Load Shear Comb. (Abs. 1 1 Maxima for Load Shear Comb. (Abs. 1 1 RESULTS FOR	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3 (kN) Max.)(C 51.091	Maximum A compression 0.000 Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) (Tensior 0.00(uxial (kN) (Tensior 0.00(uxial (kN) () (Tensior 0.00(<	ending Pos. 2 ending Pos. 0	(m) 1.223 g Momen (m) 1.000 g Momen (m) 2.777	Maxve -186.547 	Pos. (r 0.00
texime for toad Shear for 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3 (kN) Max.)(C 51.091	Maximum A compression 0.000 Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) (Tensior 0.00(uxial (kN) (Tensior 0.00(uxial (kN) () (Tensior 0.00(<	ending Pos. 2 ending Pos. 0	(m) 1.223 g Momen (m) 1.000 g Momen (m) 2.777	Maxve -186.547 	Pos. (r 0.00
Maxima for Load Shear Comb. (Abs. 1 -1 Maxima for Load Shear Comb. (Abs. 1 1 Maxima for Load Shear Comb. (Abs. 1 1 RESULTS FOR	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3 (kN) Max.)(C 51.091	Maximum A compression 0.000 Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) (Tensior 0.00(uxial (kN) (Tensior 0.00(uxial (kN) () (Tensior 0.00(<	ending Pos. 2 ending Pos. 0	(m) 1.223 g Momen (m) 1.000 g Momen (m) 2.777	Maxve -186.547 	Pos. (1 0.0)
texime for toad Shear for 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3 (kN) Max.)(C 51.091	Maximum A compression 0.000 Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) (Tensior 0.00(uxial (kN) (Tensior 0.00(uxial (kN) () (Tensior 0.00(<	ending Pos. 2 ending Pos. 0	(m) 1.223 g Momen (m) 1.000 g Momen (m) 2.777	Maxve -186.547 	Pos. (1 0.0)
texime for toad Shear for 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3 (kN) Max.)(C 51.091	Maximum A compression 0.000 Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) (Tensior 0.00(uxial (kN) (Tensior 0.00(uxial (kN) () (Tensior 0.00(<	ending Pos. 2 ending Pos. 0	(m) 1.223 g Momen (m) 1.000 g Momen (m) 2.777	Maxve -186.547 	Pos. (1 0.0)
texime for toad Shear for 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -	Member 1 (kN) Max.)(C 51.091 Member 2 (kN) Max.)(C 20.000 Member 3 (kN) Max.)(C 51.091	Maximum A compression 0.000 Maximum A compression 0.000 Maximum A compression 0.000	uxial (kN) (Tensior 0.00(uxial (kN) (Tensior 0.00(uxial (kN) () (Tensior 0.00(<	ending Pos. 2 ending Pos. 0	(m) 1.223 g Momen (m) 1.000 g Momen (m) 2.777	Maxve -186.547 	Pos. (1 0.0 0.0
Maxima for Load Shear Comb. (Abs. 1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -	(kN) Max.)(C 51.091 Member 3 (kN) Max.)(C 000 Member 3 (kN) Max.)(C 51.091 COMBINA (m) Shed d 1 000 000 000	Maximum A Compression 0.000 Maximum A Compression 0.000 Maximum A Compression 0.000 Maximum A Compression 0.000 MION 1 FORCE (RN) -151.091 -91.091 -31.091 -31.091 28.909 88.909	xial (kN)) (Tensior 0.00 xial (kN) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.		ending Pos. 2. ending Pos. 3. ending Pos. 3. entm) 910 726 3000	(m) 1 223	Maxve -186.547 nt (kN.m) Maxve -186.547 nt (kN.m) Maxve -186.547 dy (mm) 0.0 -2.6 -5.0 0.0	Pos. (1 0.0 0.0
caxima for cond. Shear comb. (Abs. 1 -1 cond.) Shear cond.) Shear cond.	(kN) Max.)(C 51.091 Member 3 (kN) Max.)(C 000 Member 3 (kN) Max.)(C 51.091 COMBINA (m) Shed d 1 000 000 000	Maximum A Compression 0.000 Maximum A Compression 0.000 Maximum A Compression 0.000 Maximum A Compression 0.000 MION 1 FORCE (RN) -151.091 -91.091 -31.091 -31.091 28.909 88.909	xial (kN)) (Tensior 0.00 xial (kN) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	< P	ending Pos. 2. ending Pos. 3. ending Pos. 3. entm) 910 726 3000	(m) 1 223	Maxve -186.547 nt (kN.m) Maxve -186.547 nt (kN.m) Maxve -186.547 dy (mm) 0.0 -2.6 -5.0 0.0	Pos. (

•			•					* JOB : W	
								*	
			:					* DATE:	
•			* A N	A L Y	SISR	ESU	LTS		12
ANALY	SE (C)C	opyright Comp	wter a	nd Desi	m Servi		ited 1	005	
								.,,,, 	
RESULTS	FOR COM	BINATION 1	MEMBER	2					
Positi	on (m)	Shear Force	Axial	Comp.	Bend . Mo	ment.	dx	dy	Slope
from	End 1	(kN)		(kN)	(k	N.m)	(mm)	(1000)	(deg
Jt. 3	6.000	(kN) -120.000		0.000	-186	.547	0.0	0.0	-Ò.07
J./5L	4.500	-60.000		0.000	-51	-547	0.0	1.1	-0.02
).50L	3.000	0.000		0.000	-6	.547	0.0	1.3	0.00
).25L	1.500	60.000		0.000	-51	.547	0.0	1.1	0.02
lt. 2	0.000	120.000		0.000	-186	.547	0.0	0.0	0.07
laximum	+ve Ben	ding Moment	0	.000 kN	.m at	0.000	a from	ioint 2	
Taximum	-ve Ben	ding Moment	-186	.547 kN	.m at	0.000	n from	joint 2	
ESULTS	POR COM	BINATION 1	MEMBER	3					
	on (m)		Axial	Comp.	Bend.Mc	ment	dx	dv	Slop
from	End 1	(kN)		(kN)	()	(N.m)	(mm)		(deg
lt. 4	6.000	-88.909		0.000	``	.000			0.18
75L	4.500	-28.909		0.000	86				0.10
		31.091		0.000	86	.726	0.0	-5.0	
		91.091		0.000	-4	.910	0.0	-2.6	
+ 3	0.000	151.091		0.000	-186	.547	0.0	0.0	
Maximum	+ve Ben	ding Moment ding Moment	98	.810 kN	.m at	3.777	n from	joint 3	





مثال : كما بالرسم أطار هيكلى (Frame) وعليه أحمال موزعة بانتظام (Uniform Dist.) $DL=4\,t/m$, $LL=3.5\,t/m$



وباستخدام المثال السابق يمكن حل البلاطات المسطحة (Flat slab) على هيئة أطار هيكلي (Frame) .

- قطاع الأعمدة ٦٠ × ٦٠ سم والبلاطة ٦٠٠ سم في الاتجاه العمودي على الصفحة ويسمك ٢٠ سم .

- نعد البيانات الازمة للحل وهي :

(Joint Coordinates) انقاط المنشأ -١

Jt	1	2	3	4	5	6	7	8	9	10	11	12
х	0	0	0	5	5	5	12	12	12	17	17	17
у	0	3	6	0	3	6	0	3	6	0	3	6

وتظهر الشاشة في الصورة التالية :

Joint	positions	
Jt.	X coord	Y coord
NO.	(m)	(m)
1	0.000	0.000
2	0.000	3.000
3	0.000	6.000
4	5.000	0.000
5	5.000	3.000
6	5.000	6.000
7	12.000	0.000
8	12.000	3.000
9	12.000	6.000
10	17.000	0.000
11	17.000	3.000
12	17.000	6.000
13		

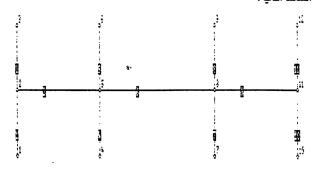
- نضغط [Esc] التسجيل وندخل أعضاء المنشأ طبقا الجدول التالي :

Member	Jt1	Jnt.con	Jt.2	Jnt.con
1	_ 1	F	2	F
2	2	F	3	F
3	2	F	5	F
4	4	F	5	F
5	5	F	6	F
6	5	F	8	F
7	7	F	8	F
8	8	F	9	F
9	8	F	11	F
10	10	F	11	F
11	11	F	12	F

وتظهر الشاشة في الصورة التالية:

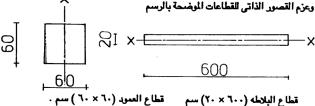
r		-			~ .	_					
ł	Mei	nber	Locati	on and	fixity						
ł	Men	J1.	Jnt X	1 Coord	Y1 Coor	d J2.	Jnt	X2 Coord Y	2 Coor	i Lengti	Slope
I	No	. No .	Con	(m)	(m)	no.	. con	(m)	(m)	(m)	(deg)
I	1	1	F	0.000	0.000	2	F	0.000	3.000	3.000	90.000
I	2	2	F	0.000	3.000	3	F	0.000	000.6	3.000	90.000
l	3	2	F	0.000	3.000	5	F	5.000	3.000	5.000	0.000
I	4	4	F	5.000	0.000	5	F	5.000	3.000	3.000	90.000
١	5	5	F	5.000	3.000	6	F	5.000	6.000	3.000	90.000
I	6	5	F	5.000	3.000	8	F	12.000	3.000	7.000	0.000
l	7	7	F	12.000	0.000	8	F	12.000	3.000	3.000	90.000
١	8	8	F	12.000	3.000	9	F	12.000	6.000	3.000	90.000
I	9	8	F	12.000	3.000	11	F	17.000	3.000	5.000	0.000
İ	10	10	F	17.000	0.000	11	F	17.000	3.000	3.000	90.000
ı	11	11	F	17.000	3.000	12	F	17.000	6.000	3.000	90.000
I	12										
ı											

- نضغط [ESC] للعودة الشاشة الرئيسية ثم [D] للتاكد من صحة البيانات فتظهر الشاشة التالية:



بعد التأكد من الرسم الخاص بالمنشأ نعود الشاشة الرئيسية بالضغط على [ESC] .

- نضغط [۲] خصائص قطاعات وأعضاء المنشأ (Properties) وتحسب المساحة عزم القصور الذاتي للقطاعات الموضحة بالرسم



ملاحظة: يحسب عزم القصور الذاتي حول المحور الذي تعور حوله عزوم الانحناء (Bending Moments)

Table of Sec	tions			Member Section Properties			
Scction Area	Inertia	No. of	Mem	Member	No. S	ec.	modulus E
NO. (cm2)	(cm4)	Elements	No.	Length N/p	Seg	No.	(N/mm2)
1 3600.000	1080000.00	1	1	3.000 P<	1	1	21000.000
2 12000.000	400000.00	0 1	2	3.000 p	1	1	21000.000
3			3	,5.000 p	1	2	21000.000
			4	3.000 p	1	1	21000.000
			5	3.000 p	1	1	21000.000
			6	7.000 p	1	2	21000.000
			7	3.000 p	1	1	21000.000
			8	3.000 p	1	1	21000.000
			Inpu	mode			

Table of Sec	tions			Member Section Properties				
Scction Area	Inertia	No. of	Mem	Member No. Sec. modulus E				
NO. (cm2)	(cm4)	Elements	No.	Length N/p Seg No. (N/mm2)				
1 3600.000	1080000.00) 1	4	3.000 P< 1 1 21000.000				
2 12000.000	400000.00	1	5	3.000 P 1 1 21000.000				
3			6	7.000 P 1 2 21000.000				
			7	3.000 P 1 1 21000.000				
			8	3.000 P 1 1 21000.000				
			9	5.000 P 1 2 21000.000				
			10	3.000 P 1 1 21000.000				
			11	3.000 P 1 1 21000.000				
			Inpu	at mode				

⁻ نضغط [ESC] للتسجيل والخروج الشاشة الرئيسية .

- نضغط [٤] الركائز Supports

الركائز ٢، ٢، ٤، ٣، ١٠، ١٠، ١٠ كلها ثابتة (Fixed Supports)

No.	Joint	X Restraint	Y Restraint	A Restraint
	Pos	(KN/mm)	(KN/mm)	(KNm/rad)
1	1	Full	Full	Full
2	3	Full	Full	Full
3	4	Full	Full	Full
4	6	Full	Full	Full
5	7	Full	Full	Full
6	9	Full	Full	Full
7	10	Full	Full	Full
8	12	Full	Full	Full
9				

- نضغط [ESC] للتسجيل والعودة للشاشة الرئيسية .

- نضغط [5] اسماء الاحمال (Load case names) وهي حمل ميت على البلاطة كلها (Dead Load) وثلاثة أحمال حية (Live Loads) .

تؤثر على الأعضاء ٣ ، ٦ ، ٩ وهي على الترتيب Live Load 1 , Live Load2 , Live Load3

وتظهر الشاشة في الصورة التالية :

Global	Load Case Names
No. L	oad Case Name
1	Dead Load<
2	Live Load 1
3	Live Load 2
4	Live Load 3
5	

- نضغط [ESC] للتسجيل والعودة للشاشة الرئيسية .

- نضغط [٢] لايخال الأحمال المؤثرة علي الأعضاء [6 Member Loads]

- Member (3)		-
1- Dead Load	UV	40 Kn/m`
2- Live Load1	UV	35 Kn/m`
- Member (6)		
1- Dead Load	υv	40 Kn/m`
2- Live Load2	υv	35 Kn/m
- Member (9)		
1- Dead Load	UV	40 Kn/m
2- Live Load3	υv	35 Kn/m

وتظهر الشاشات التالية:

MEMBE	K LUAD	3 10	acis ec	noments on Men	iber 3 (rengin=3.000ii	slope = 0.000deg)
Mem	No.of	Ld.	Load c	ase	Load	Start Loaded	(KN, KN.m or KN/m
No.	Loads	No.	Numbe	r & name	Туре	Pos (m) Len (m) Start val . End val .
1	0	1	1	Dead Load	υv		40.000
2	0	2	2	LIVE LOAD 1	υv		35.000
3	2	3					
4	0						
5	0						
6	2						
7	0						
8	0						
9	2						
10	0						
11	0						

MEMBER	LOAD	S Lo	ıds & m	oments on Memb	er 6 (L	ength=7.000m	slope = 0.000deg)
Mem	No.of	Ld.	Load c	ase	Load	Start Loaded	(KN, KN.m or KN/m)
No.	Loads	No.	Numbe	r & name	Туре	Pos (m) Len (m) Start val . End val .
1	0	1	1	Dead Load	UV		40.000
2	0	2	3	LIVE LOAD 2	υv		35.000
3	2	3					
4	0						
5	0						
6	2						
7	0						
8	0						
9	2						
10	0						
11	0						

MEMBER	MEMBER LOADS Loads & moments on Member 9 (Length=5.000m slope = 0.000deg)							
Mem	No.of	Ld.	Ld. Load case			Load Start Loaded (KN, KN.m or KN/m		
No.	Loads	No	. Number	r & name	Туре	Pos (m) Len (m) Start val . End val .	
1	0	1	1	Dead Load	UV		40.000	
2	0	2	4	LIVE LOAD 3	UV		35.000	
3	2	3						
4	0							
5	0							
6	2							
7	0							
8	0							
9	2							
10	0							
11	0							

	- نضغط [٨] حالات التصيل (8 Combinations)
Case (1): (DL + LL1)	.خل حالات التحميل كما بالرسم
Case (2): (DL + LL2)	
Case (3): (DL + LL1 +	LL2)
Case (4): (DL + LL1 +	LL2 + LL3)
L	
Case (5): (DL + LL1 +	LL3)

- نضغط [ESC] للعودة للشاشة الرئيسية .

تظهر الشاشات التالية:

Safety Factors for Combination 1					
Load Case		Safety			
Num	factor				
1	Dead Load	1.000<			
2	LIVE LOAD 1	1.000			
3	LIVE LOAD 2	0.000			
4	LIVE LOAD 3	0.000			

Safety Factors for Combination 2					
Load Case Safety					
Number and name factor					
1 Dead Load 1.000	K				
2 LIVE LOAD 1 0.000)				
3 LIVE LOAD 2 1.000)				
4 LIVE LOAD 3 0.000)				

Safety Factors for Combination 3					
Load Case		Safety			
Nun	nber and name	factor			
1	Dead Load	1.000<			
2	LIVE LOAD 1	1.000			
3	LIVE LOAD 2	1.000			
4	LIVE LOAD 3	0.000			

Safety Factors for Combination 4					
Load	Safety				
Num	Number and name				
1	Dead Load	1.000<			
2	LIVE LOAD 1	1 000			
3	LIVE LOAD 2	1.000			
4	LIVE LOAD 3	1.000			

Safety Factors for Combination 5						
Load Case Safety						
Nun	factor					
1	Dead Load	1.000<				
2	LIVE LOAD 1	1.000				
3	LIVE LOAD 2	0.000				
4	LIVE LOAD 3	1.000				

- نضغط [ESC] للتسجيل والعودة الشاشة الرئيسية .
 - نضغط [٩] المل (9 Analysis / Results)
- نضغط [٢] لمشاهدة خطوات المل على الشاشة (Y كانساهدة خطوات المل على الشاشة
- تظهر نتائج الأعضاء كلها ومنها رقم ٢ ، ٦ ، ٩ لمالات التحميل من ١ إلى ٥ .

Joint	positions	
Jt.	X coord	Y coord
No.	(m)	(m)
1	0.000	0.000
2	0.000	3.000
3	0.000	6.000
4	5.000	0.000
5	5.000	3.000
6	5.000	6.000
7	12.000	0.000
8	12.000	3.000
ğ	12.000	6.000
10	17.000	0.000
ii	17.000	3.000
12	17.000	6.000
13		

F1 Help	Calc	Top	Up	Down	Commnd		Escape	is ON
		and fixity	rd J2.	Jnt X	(2 Coord	¥2 Coc	ord Length	Slope

No.	no.	con	(m)	(m)	no.	con	(m)	(m)	(m)	(deg)
1	1	F	0.000	0.000			0.000	3.000	3.000	90.000
2	2	F	0.000	3.000	3	F	0.000	6.000	3.000	90.000
3	2	F	0.000	3.000	5	F	5.000	3.000	5.000	0.000
4	. 4	·F	5.000	0.000	5	F	5.000	3.000	3.000	90.000
5	5	F	5.000	3.000	6	F	5.000	6.000	3.000	90.000
6	5	F	5.000	3.000	8	F	12.000	3.000	7.000	0.000
7	7	F	12.000	0.000	8	F	12.000	3.000	3.000	90.000
В	8	F	12.000	3.000	9	F	12.000	6.000	3.000	90.000
9	8	F	12.000	3.000	11	F	17-000	3.000	5.000	0.000
10	10	F	17.000	0.000	11	F	17.000	3-000	3.000	90.000
11 12	11	F	17.000	3.000	12	F	17.000	6.000	3.000	90.000

F1	£2	F6	F7	F8	F9	F10	ESC	NUMLOCK
Help	Calc	Top	Uр	Down	Commnd	Bottom	Escape	is ON

Table of Sections

Sectio	n Area	Inertia	No. of
No.	(cm2)	(cm4)	Elements
1	3600.000	1080000.00	1
2	12000.000	400000.00	1
3			

Input mode

F1 Heli	F2 D Calc	F6 Top		B Wn Co	F9 F10	ES		NUMLOCK.
	of Sections				r Section F		•	22 011
Section	on Area	Inertia	No. of	Mem	Member	No.		Modulus E
No.	(cm2)	(cm4)	Elements	No.	Length N/F	Seg	No.	(N/mm2)
1	3600.000	1080000.00	1	1	3.000 P	í	1	21000.000
2	12000.000	400000.00	1	2	3.000 P	i	1	21000.000
3				3	5.000 P	1	2	21000.000
				4	3.000 P	1	1	21000.000
				5	3.000 P	1	1	21000.000
				6	7.000 P	1	2	21000.000
				7	3.000 P	1	1	21000.000

8 3.000 P 1 1 21000.000 Input mode

fl Help	F2 Calc	F6 Top		F8 own Co	F9 ommnd	F10 Bottom		SC ape	NUMLOCK is ON
	f Sections			Membe	er Sec	tion P	rope	rties	
Section	Area	Inertia	No. of	Mem	Memb	er	No.	Sec.	Modulus E
No.	(cm2)	(cm4)	Elements	No.	Leng	th N/P	Seg	No.	(N/mm2)
	3600.000	1080000.00	1	4	3.	000 P	ī	1	21000.000
2 1	2000.000	400000.00	1	5	3.	.000 P	1	1	21000.000
3				6	7.	000 P	1	2	21000.000
				7	3.	000 P	1	1	21000.000
				8	3.	000 P	1	1	21000.000
				9	5.	000 P	1	2	21000.000
				10	3.	000 P	1	1	21000.000
				11	3.	000 P<	1	1	21000.000
				Inp	it mod	le			

?l	F2	F6	F7	F8	F9	F10	ESC	NUMLOCK
elp	Calc	Top	Up	Down	Commnd	Bottom	Escape	is ON
Jnt Pos 1< 3 4 6 7 9 10	X Restraint (kN/mm) FULL FULL FULL FULL FULL FULL FULL FUL]]] 1						

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Command Bottom Escape is ON

Global load case names

No. Load Case Name
1 Dead Load<
2 LIVE LOAD 1
3 LIVE LOAD 2
4 LIVE LOAD 3

Input mode

Fl F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Uр Down Commnd Bottom Escape is ON Loads & moments on Member 3 (length = 5.000m slope = 0.000deg)
Ld. Load case Load Start Loaded (kN, kN.m or kN/m)
No. Number & name Type Pos(m) Len(m) Start val. End val. MEMBER LOADS Mem No.of No. Loads 0 Dead Load UV 40.000 1 1 1 ŏ 3 2 LIVE LOAD 1 UV 234567 35.000 ž ō ŏ 2 8 ō 2 ô 10 11 0

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC NUMLOCK Help Calc Top Up Down Command Bottom Escape is ON

MEMBE Mem No. 1 2 3 4 5 6 7 8 9 10	R LOADS No. of Loads 0 0 2 0 0 2 0 0 2 0 0 2	Loads & moo Ld. Load o No. Number 1 1 2 3	ase Lame	Load Type Load UV	Start	Loaded	00m slope = ((kN, kN.m Start val. 40.000 39.000	0.000deg) Or kN/m) End val.
		Input mod	•					
F1 Rel		P To		F8 Down	F9 Commnd	F10 Bottom	ESC Escape	NUMLOCK is ON
MEMBE Mem No. 1 2 3 4 5 6 7 8 9 9 10 11	R LOADS NO. of Loads 0 0 2 0 0 2 0 0 2 0 0 0 0 0 0 0 0 0 0	Loads & mo Ld. Load No. Numbe 1 1< 2 4	case r & name Dead	Load	Start	Loaded	00m slope = (0.00deg) or kN/m) End val.
		Input mod	•					
Load	p Calc y Factors Case or and nas Des LIVE LIVE	ne fa nd Load LOAD 1 LOAD 2	y Up	F8 Down	F9 Commnd 1	F10 Bottom	ESC Escape	NUMLOCK is ON

F1	F2	F6	F7	F8	F9	F10	ESC	NUMLOCK
Help	Calc	Top	Up	Down	Commnd	Bottom	Escape	is ON
Load Ca		0.0	ty or 00 00 00					

Input mode

Help	Calc	Top	Up	Down	Commad	F10 Bottom	ESC Escape	NUMLOCK is ON
Safety	Factors for C	ombination	3					
Load Ca	80	Safety						
Number	and name	factor						
1	Dead Load	1.000						
2	LIVE LOAD 1	1.000						
3	LIVE LOAD 2	1.000						
4	LIVE LOAD 3	0.000						

F1 Help Safety F Load Can Number a 1 2 3 ·	F2 Calc Pactors for Come Ind name Dead Load LIVE LOAD 1 LIVE LOAD 2 LIVE LOAD 3	F6 Top bination Safety factoo 1.000 1.000	,)<)	F8 Down	P9 Commund	F10 Bottom	ESC Escape	NUMLOCK is ON
Input :	F2	P6	F7	F8	P9	F10	ESC	NUMLOCK
Load Car	Pactors for Cos	Top shination Safety facton 1.000 0.000 1.000	, , ,	Down	Commund	Bottom	Escape	is ON
Input :	aode							

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- AM	RESER!	(C)C0]	PALIC	inc c	Ompu	ter	and D	esign	261	vices esses	FIL	===		703 EREFES	-==	*****
FRAME	GEOM	ETRY														
No. o	f Joi	nts =	12													
MEMBE	RS															
:-																
														Length		
No.:n	0.: :		(M) :	! !	(m) :	no.: :		(m)	-:		(m)	.: 	(m)		(deg)
1:	1:F:	0.	000		0.00	0 :	2:F:		0.000	:	3.	000		3.000		90.00
2:	2:F:	0.	000		3.00	0 :	3:F:	(.000	:	6.	000	:	3.000		90.00
3:	2:F:	0.	000	:	3.00	0 :	5:F:	:	5.000	:	3.	000	:	5.000		0.00
4 :	4:F:	5.	000		0.00	0 :	5:F:		5.000	:	3.	000	:	3.000		
5:	5:F:	5.	000	•	3.00	0 :	6:F:		5.000	•	6.	000	•	3.000 7.000		
6:	5:F:	.5.	000		3.00	0:	8:F:	1.	2.000		3.	000	:	3.000		0.00 90.00
/:	7:F:	12.	000	:	3 00		8:F:	1.	2.000		٥.	000	:	3.000		
9.	9.F.	12.	000	:	3.00		11.F	1	7.000	:	3.	000	:			
10:	10:F:	17.	000	:	0.00	ŭ :	11:P:	î.	7.000	:	3.	000	:			
11:	11:F:	0.0 0.5 5.5 12.12.12.17.17.	000		3.00	0:	12:P:	1	7.000		6.	000	:	3.000	:	90.00
		ECTION		-2===		===	*****	225			2522	***		******	==:	
		•							-1							
	on:	Are					ctangu : D (Lea)		
		(Cm2	,. -:		.m4):					(nun) :	: :					
1	:	3600.0	0: 1	08000	0.0:	1	: 600	.00:	60	0.00	:	0	.00			
2	:1	2000.0	0:	40000	0.0:	1	: 200	.00:	600	0.00		0	.00			
SUMMA	RY OF	МЕМВЕ	R PR	OPERT	TIES											
Membe	r 1 -	2 PRI	SMAT	ic :	Sect	ion	Numbe	r 1	: Mo	dulus	s E	-	21	00.0 N	/ ma	n2
Membe													00.	N/mm2		
Membe		5 PRI	SMAT	ic:	Sect	ion	Numbe	r 1	: Mo	dulus	s E	•		000.0 N		
Membe	r 6 P												00.	N/mm2		
Membe		8 PRI											21	000.0 N	/m	n2
Membe														N/rum.2		
Membe	r 10						on Nu					E =		21000.0	N,	/mm2

No. of Supports = 8

SUPPORTS

Joint : X Restraint : Y Restraint : Angular Restraint Number: (kN/mm): (kN/mm): (kN.m/radian)----- (Continued on Next Page)-----* EGYPTIAN ENGINEERS * JOB : FRAME * FOR COMPUTERS (E E C) * DATE: 1992 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 SUPPORTS continued Joint : X Restraint : Y Restraint : Angular Restraint Number: (kN/mm): (kN/mm): (kN.m/radian) .---:------:---: FULL : FULL : FULL FULL : FULL : FULL : FULL | FULL | FULL | FULL | FULL : FULL | FULL : FU 3 . : 7 Ġ 10 : 12 APPLIED LOADS AND MOMENTS MEMBER 3 LOAD CASE :LOAD: POSITION : LOAD / MOMENT No : Name :Type: Start: Length: Start Value: End Value ---1-----1: Dead Load: UV: 2: LIVE LOAD 1: UV: : : 40.000 kN/m: 35.000 kN/m: : MEMBER 6 LOAD CASE :LOAD: POSITION : LOAD / MOMENT No : Name :Type: Start: Length: Start Value: End Value --- : ----:---:--1: Dead Load: UV: : : 40.000 kN/m: : 35.000 kN/m: MEMBER 9 LOAD CASE :LOAD: POSITION : LOAD / MOMENT No : Name :Type: Start: Length: Start Value: End Value ---:-----Dead Load: UV : 1: : : 40.000 kN/m:

4: COMBINATIONS

: TABULATED VALUES OF PARTIAL SAFETY FACTORS
L O A D C A S E : Combination Number

35.000 kN/m:

.

LIVE LOAD 3: UV :

		Name					2						
				-:		:		:		:			
1	:		d Loa										
2	! :	LIVE	LOAD	1:1.	000	:		:1.	000	:1.	000	:1.	.000
3	3:	LIVE	LOAD	2:		:1.	.000	:1.	000	:1.	000	•	
4	١:	LIVE	LOAD	3:		:		:		:1.	000	:1:	.000

. EGYPTIAN ENGINEERS * JOB : FRAME * FOR COMPUTERS (E E C) * DATE: 1992 * 190 EL SUDAN ST., MOHANDESSIN *-----* A N A L Y S I S R E S U L T S *SHEET: 7 ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 Joint Displacements and Reactions Joint No. dx(mm) dy (mm) 0(rad) Px (kN) Py (kN) M (kN.m) 0.00 0.0000 35.268 91.488 -35.268 1 0.00 3 0.00 -0.04 -0.0002 0.00 0.0000 91.488 -35.268 0.00 -35.268 5 0.00 0.00 0.0000 0.467 166.519 -0.467 0.00 0.0000 -0.07 -0.467 166.519 -0.467 0.00 0.00 0.0000 7 0.00 16.134 0.00 0.0000 -16.134 121.656 0.00 -0.05 0.0001 ğ 0.00 0.00 0.0000 16.134 121.656 16.134 1ō 0.00 0.00 0.0000 -18.076 47.837 18.076 -0.02 0.0001 0.00 11

18.076

47.837

18.076

0.0000

0.00 Summation of Forces and Moments

12

	Px (kN)	Py (kN)	Mo (kN.m)
Member Loads	0.000	-855.000	-6217.500
Joint Loads	0.000	0.000	0.000
Reactions	0.000	-855-000	-6217.500
Summation	0.000	855.000	6217.500
	·		
Summation	0.000	0.000	0.000

0.00

RESULTS FOR COMBINATION 2

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0000	16.608	45.925	-16.608
2	0.00	-0.02	-0.0001			
3	0.00	0.00	0.0000	-16.608	45.925	-16.608
4	0.00	0.00	0.0000	47.867	185.325	-47.867

5	0.00	-0.07	-0.0003			
6	0.00	0.00	0.0000	-47.867	185.325	-47.867
7	0.00	0.00	0.0000	-47.867	185.325	47.867
8	0.00	-0.07	0.0003			
9	0.00	0.00	0.0000	47.867	^ 185.325	47.867 -
10	0.00	0.00	0.0000	-16.608	45.925	16.608
11	0.00	~0.02	0.0001			
12	0.00	0.00	0.0000	16.608	45.925	16.608

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RESULTS FOR COMBINATION 2 continued

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -925.000 0.000	Mo (kN.m) ~7862.500 0.000
Reactions Summation	0.000 0.600	-925.000 925.000	-7862.500 7862.500
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 3

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0000	33.823	89.606	-33.823
2	0.00	-0.04	-0.0002			
3	0.00	0.00	0.0000	-33.823	89.606	-33.823
4	0.00	0.00	0.0000	31.697	229.651	-31.697
5	0.00	-0.09	-0.0002			
6	0.00	0.00	0.0000	-31.697	229.651	-31.697
7	0.00	0.00	0.0000	-47.365	184.788	47.365
8	0.00	-0.07	0.0003			1,1505
9	0.00	0.00	0.0000	47.365	184.788	47.365
10	0.00	0.00	0.0000	-16.632	45.956	16.632
11	0.00	-0.02	0.0001			
12	0.00	0.00	0.0000	16.632	45.956	16.632

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -1100.000 0.000	Mo (kN.m) -8300.000 0.000
Reactions Summation	0.000	-1100.000 1100.000	-8300.000 8300.000
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 4

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(zgn)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0000	33.848	89.637	-33.848
2	0.00	-0.04	-0.0002			
3	0.00	0.00	0.0000	-33.848	89.637	-33.848
4	0.00	0.00	0.0000	31.195	229.113	-31.195
5	0.00	-0.09	-0.0002			
6	0.00	0.00	0.0000	-31.195	229.113	-31.195
7	0.00	0.00	0.0000	-31.195	229.113	31.195
		(Continued o	n Next Page)	

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•	٠	EGYPTIAN ENGINEERS * JOB : FRAME
*		
•	٠	FOR COMPUTERS (E E C) * DATE: 1992
•	٠	190 EL_SUDAN ST., MOHANDESSIN *
•	٠	ANALYSIS RESULTS *SHEET: 9
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RESULTS FOR COMBINATION 4 continued

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
8	0.00	-0.09	0.0002			
9	0.00	0.00	0.0000	31.195	229.113	31.195
10	0.00	0.00	0.0000	-33.848	89.637	33.848
11	0.00	-0.04	0.0002			
12	0.00	0.00	0.0000	33.848	89.637	33.848

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -1275.000 0.000	Mo (kN.m) -10837.500 0.000
Reactions Summation	0.000	-1275.000 1275.000	-10837.500 10837.500
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 5

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	Ò.00	0.00	0.0000	35.292	91.519	-35.292
2	0.00	-0.04	-0.0002			
3	0.00	0.00	0.0000	-35.292	91.519	-35.292
4	0.00	0.00	0.0000	-0.036	165.981	0.036
5	0.00	-0.07	0.0000			
6	0.00	0.00	0.0000	0.036	165.981	0.036
7	0.00	0.00	0.0000	0.036	165.981	-0.036
8	0.00	-0.07	0.0000			
ġ	0.00	0.00	0.0000	-0.036	165.981	-0.036
10	0.00	0.00	0.0000	-35.292	91.519	35.292
11	0.00	-0.04	0.0002			
12	0 00	0 00	0 0000	35.792	91.519	35.292

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -1030.000 0.000	Mo (kN.m) -8755.000 0.000
Reactions	0.000	-1030.000	-8755.000
Summation	0.000	1030.000	8755-000
Summation	0.000	0.000	0.000

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Maxima for Member 1

Load	Shear (kN)	Maximum Ax	ial (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-35.268	91.488	0.000	35.268	0.000	-70.536	3.000
2	-16.608	45.925	0.000	16.608	0.000	-33.215	3.000
3	-33.823	89.606	0.000	33.823	0.000	-67.647	3.000
4	-33.848	89.637	0.000	33.848	0.000	-67.695	3.000
5	-35.292	91.519	0.000	35.292	0.000	-70.584	3.000

Maxima for Member 2

Load	Shear (kN)	Maximum Ax	ial (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-35.268	0.000	91.488	70.536	0.000	-35.268	3.000
2	-16.608	0.000	45.925	33.215	0.000	-16.608	3.000
3	-33.823	0.000	89.606	67.647	0.000	-33.823	3.00C
4	-33.848	0.000	89.637	67.695	0.000	-33.848	3.000
5	-35.292	0.000	91.519	70.584	0.000	-35.292	3.00C

Maxima for Member 3

Load	Shear (kN)	Maximum Axi	al (kN)	< B	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max. tve	Pos. (m)		Pos. (m)
1	-192.025	0.000	0.000	82.128	2.440	-163.695	5.000
2	-108.151	0.000	0.000	39.024	2.296	-107.183	5.000
3	~195.788	0.000	0.000	78.819	2.389	-176.734	5.000
4	~195.726	0.000	0.000	78.871	2.390	-176.520	5.000
5	-191.963	0.000	0.000	82.183	2.440	-163.481	5.000

Maxima for Member 4

Load	Shear (kN)	Maximum Axi	ial (kN)	< B	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-0.467	166.519	0.000	0.467	0.000	-0.934	3.00C
2	-47.867	185.325	0.000	47.867	0.000	~95.734	3.000
3	-31.697	229.651	0.000	31.697	0.000	-63.394	3.000
4	-31.195	229.113	0.000	31.195	0.000	-62.389	3.000
5	0.036	165.981	0.000	0.071	3.000	-0.036	0.000

Maxima for Member 5

Load	Shear (kN)	Maximum Ax:	ial (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)(C	ompression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-0.467	0.000	166.519	0.934	0.000	-0.467	3.000
2	-47.867	0.000	185.325	95.734	0.000	-47.867	3.000
3	-31.697	0.000	229.651	63.394	0.000	-31.697	3.000
4	-31.195	0.000	229.113	62.389	0.000	-31.195	3.000
5	0.036	0.000	165.981	0.036	3.000	-0.071	0.000

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Maxima for Member 6

Load	Shear (kN)	Maximum Axi	al (kN)	< Be	ending Hom	ent (kN.m)	~>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	141.013	0.000	0.000	82.997	3.525	~165.563	0.000
2	262.500	0.000	0.000	160.723	3.500	~298.652	0.000
3	263.513	0.000	0.000	159.407	3.514	~303.522	0.000
4	262.500	0.000	0.000	158.077	3.500	~301.298	0.000
5	-140.000	0.000	0.000	81.661	3.500	-163.339	0.000

Maxima for Member 7

1 2 3 4 5	16.134 47.867 47.365 31.195	121.656 185.325 184.788 229.113 165.981	0.000 0.000 0.000 0.000	32.269 95.734 94.729 62.389 0.036	3.000 3.000 3.000 3.000 0.000	-16.134 -47.867 -47.365 -31.195 -0.071	0.000 0.000 0.000 0.000 3.000
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Maxima for Member 8

Load	Shear (kN)	Maximum Ax	ial (kN)	< B	ending Mom	ent (kN.m)	>
	(Abs. Max.)(C	Compression	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	16.134	0.006	121.656	16.134	3.008		
- 5	47.867	0.000	185.325	47.867	3-000	-95.734	
	47.365	0.000	184.788	47.365	3.000	-94.729	0.000
ă	31.195	0.000	229.113	31, 195	3.000	-62.389	0.000
- 3	-0.036	0.000	165.981	0.071	0.000	-0.036	3.000

Maxima for Hember 9

Load	Shear (kN)	Maximum Axi	ial (kN)	< B	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	104.325	0.006	0.000	42.116		-93.931	0.000
2	108.151	0.000	0.000	39.024	2.704	-£07.183	0.000
3	108.089	0.008	0.000	39.070	2.702	-146.970	
4	195.726	0.006	0.000	78.871	2.610	-176.520	0.000
5	191.963	0.000	0.000	82.183	2.560	-163.481	0.000

Maxima for Member 10

Load	Shear (kN)	Maximus Ari	ial (kN)	< Be	ending Mom	est (kN.m)	>
Comb.	(Abs. Max.) (C	Compression)	(Tension)	Max.+ve		Maxve	Pos. (m)
1	18.076	47.837	0.000	36.152		-18.076	0.000
2	16.608	45.925	0.000	33.215	3.000	-16.608	0.000
3	16.632	45.956	0.000	33.263	3.000	-16.632	0.00C
4	33.848	89.637	0-000	67.695	3.000	-33.848	0.000
5	35.292	91.519	0.000	70.584	3.000	-35.292	0.000

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Maxima for Member 11

Lcau	Simus (kN)	May mum Fy	iel (kF)	e 2:	ecding Non	ant (kK.ml	
Conde	(Aut. mex.)	(Compression)	(Tension)	Hax.tve	Pos. (m)	Maxve	Pos. (m)
1	18.076	0.008	47-837	18.076	3.000	-36.152	0.000
2	16.608	0.005	45.925	16.608	3.000	-33.215	0.000
3	16.632	0.006	45.956	16.632	3.000	-33.263	0.000
	22 040			22 040	3 000		

5	35.2	92 0.000	91.519	35.292	3.000	-70.584	0.000
RESULTS	FOR COM	BINATION 1	MEMBER 1				
Posit	ion (m)	Shear Force	Axial Comp. (kN) 91.488	Bend.Moment	dx	dy	Slope
fron	n End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 2	3.000	-35.268	91.488	-70.536	0.0	0.0	89.987
			91.488				
0.50L	1.500	-35.268	91.488	-17.634	-0.1	0.0	90.003
0.25L	0.750	-35.268 -35.268	91.488	8.817 35.268	0.0	0.0	90.004
Jt. 1	0.000	-35.268	91.488	35.268	0.0	0.0	90.000
Maximum	tve Ben	ding Moment	35.268 kN	.m at 0.0	00m from	ioint 1	
Maximum	-ve Ben	ding Moment	-70.536 kN	.m at 3.0	00m from	joint 1	
DECLIT MC	POD COM	BINATION 1					
KESULIS	FOR COR	BINALION I	MEMBER 2				
Posit	ion (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
fro	n End 1	(kN)	(kN) -91.488 -91.488 -91.488	(kN.m)	(mm)	(mm)	(deg)
Jt. 3	3.000	-35.268	-91.488	-35.268	0.0	0.0	90.000
0.75L	2.250	-35.268	-91.488	-8.817	0.0	0.0	90.004
0.50L	1.500	-35.268	-91.488	17.634	0.1	0.0	90.003
0.25L	0.750	-35.268	-91.488	44.085	0.1	0.0	89.997
Jt. 2	0.000	-35.268	-91.488	70.536	0.0	0.0	89.987
Mariana	Ave Ben	ding Woment	70.536 kN		nom from	ioint 2	
Marinum	TVE BEI	ding Moment	-35.268 kN	.m at 0.0	OOM IIOM	joint 2	•
naximum	-ve ber	ding noment		.m ac 3.0			
RESULTS	FOR COM	BINATION 1					
Posit	ion (m)	Shear Force	Axial Comp.	Bend. Moment	dx	dv	Slope
fro	m End i	(kN)	(kÑ)	(kN.m)	(mm)	/ mm \	(deg)
Jt. 5	5.000	~192.025	0.000	-163.695	0.0	-0.1	0.000
0.75L	3.750	-98.275	0.000	17.742	0.0	-0.9	0.054
0.50L	2.500	-4.525	0.000	81.992	0.0	-1.6	0.003
0.25L	1.250	89.225	0.000	29.054	0.0	-1.0	-0.053
Jt. 2	0.000	182.975	0.000 0.000 0.000 0.000	-141.072	0.0	0.0	-0.013
Maximum	tve Ben	ding Moment	82.128 kN -163.695 kN	.m at 2.4	40m from	joint 2	
Maximum	-ve Ben	ding Moment	-163.695 kN	.m at 5.0	00m from	joint 2	

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RESULTS FOR COMBINATION 1 MEMBER 4

Position (m) Shear	r Force	Axial Comp.	Bend.Moment	dx.	dy	Slope
from End 1	(kN)	(kN)	(kN-m)	(mm)	(mm)	(deg)
Jt. 5 3.000	-0.467	166.519	-0.934	0.0	-0.1	90.000
0.75L 2.250	-0.467	166.519	-0.584	0.0	0.0	90.000
0.50L 1.500	-0.467	166.519	-0.234	0.0	0.0	90.000
0.25L 0.750	-0.467	166.519	0.117	0.0	0.0	90.000
Position (m) from End 1 Jt. 5 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 4 0.000	-0.467	166.519	0.467	0.0	0.0	90.000
Maximum +ve Bending P Maximum -ve Bending P	Homent	0.46/ KN	movo.u zam.	from	joint 4	
MAXIMUM -ve bending r			.m at 3.000m	TIOM	JOING 4	
RESULTS FOR COMBINAT						
Position (m) Shear from End 1 Jt. 6 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000	r Porce	Avial Comp	Hend Moment	dv	dv	Slone
from End 1	(LW)	/kw	(kM m)	/mm\	(==)	(dea)
T+ 6 3 000	-0 467	-166 519	-0 467	0.0	(,,,,,,	90 000
0 751 2 350	-0.467	166 519	0.407	0.0	0.0	00.000
0.755 2.230	-0.467	-100.319	-0.117	0.0	0.0	90.000
0.300 1.300	-0.467	-100.319	0.234	0.0	0.0	90.000
0.231 0.730	-0.467	-166-519	0.384	0.0	0.0	90.000
JE. 3 0.000	-0.467	-100.319	0.934	0.0	-0.1	90.000
Marinum Ave Bending 1	Moment	U 034 FM	m =+ 0.000m	from	inint 5	
Maximum +ve Bending P Maximum -ve Bending P	Moment	0.934 KN	.m ac 0.000m	from	joint 5	
TAXIMUM -ve bending i	MOMENT C	-0.407 KM	.m ac 3.000m	LLOM	JOING 3	
RESULTS FOR COMBINAT						
Position (m) Shear from End 1 Jt. 8 7.000 -1 0.75L 5.250 - 0.50L 3.500 0.25L 1.750 Jt. 5 0.000 1	r Force	Avial Comp	Rend Moment	4.	dv	Slope
from Rnd 1	(PN)	(kN)	(kN m)	(mm)	(mm)	(deg)
Jt. 8 7.000 -1	138.987	0,000	-158 469	,,,,,,	(100.1)	0 006
0.751. 5.250	-60 007	0.000	23 509	0.0	-1.0	0.000
0 50T. 3 500	1 013	0.000	92 994	0.0	-1.0	0.074
0.251. 1.750	71 013	0.000	19 961	0.0	-1.0	-0.001
Jt. 5 0.000 1	141.013	0.000	-165 563	0.0	-0.1	0.073
						0.000
Maximum +ve Bending P	Moment	82.997 kN	m at 3.525m	from	ioint 5	
Maximum +ve Bending P Maximum -ve Bending P	Moment	-165.563 kN	m at 0.000m	from	joint 5	
RESULTS FOR COMBINATI						
Position (m) from End 1 Jt. 8 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 7 0.000	r Force	Axial Comp.	Bend. Moment	dx	dv	Slope
from End 1	(kN)	(kN)	(kN·m)	(mm)	(mm)	(deg)
Jt. 8 3.000	16.134	121.656	32.269	0.0	0.0	90.006
0.75L 2.250	16.134	121.656	20.168	0.0	0.0	90.001
0.50L 1.500	16.134	121.656	8.067	0.0	0.0	89.998
0.25L 0.750	16.134	121.656	-4.034	0.0	0.0	89.998
Jt. 7 0.000	16.134	121.656	-16.134	0.0	0.0	90.000
						,
Maximum +ve Bending P	Moment	32.269 kN	m at 3.000m	from	ioint 7	
Maximum +ve Bending Maximum -ve Bending M	Homent	-16.134 kN	m at 0.000m	from	joint 7	
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ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 MEMBER R Position (m) Shear Force Axial Comp. Bend.Moment dx (kN) (kN m) (mn) 16.114 0.0 (mm) dy Slope (kN) -121.656 (deg) 0.0 90.000 0.0 Jt. 9 3.000 16.134 -121.656 4.034 16.134 -121.656 -8.067 16.134 -121.656 -20.168 16.134 -121.656 -32.269 0.75L 0.0 89.998 2.250 0.0 0.50L 1.500 0.0 0.750 0.0 0.0 90.006 0.25L 0.000 0.0 Jt. 8 Maximum +ve Bending Moment 16.134 kN.m at 3.000m from joint 8 Maximum -ve Bending Moment -32.269 kN.m at 0.000m from joint 8 RESULTS FOR COMBINATION 1 MEMBER 9
 Position (m)
 Shear Force (ki)
 Axial Comp. (ki)
 Bend. Moment (ki)
 dx
 dy (from End 1)

 1. 1
 5.000
 -95.675
 0.000
 -72.305
 0.0
 0.0

 7.75L
 3.750
 -45.675
 0.000
 16.039
 0.0
 -0.5

 50L
 2.500
 4.325
 0.000
 41.882
 0.0
 -0.8

 23L
 1.250
 54.325
 0.000
 5.226
 0.0
 -0.4

 L
 8
 0.00
 10.325
 0.000
 -93.531
 0.0
 0.0
 dy Slope (mm) (deg) 0.0 0.007 Jt. 11 5.000 0.75L 0.026 -0.8 -0.003 0 - 50T. 0.25L -0.4 -0.027 0.006 Maximum +ve Bending Moment 42.116 kN.m at 2.608m from joint 8 Maximum -ve Bending Moment -93.931 kN.m at 0.000m from joint 8 RESULTS FOR COMBINATION 1 MEMBER 10 dx dy (mm) (mm) (deg)
0.0 0.0 90.007
0.1 0.0 90.001
0.0 89.998
0.0 89.998 Jt. 11 0.75L 0.50L 0.25L Jt. 10 0.000 0.0 90.000 3.000m from joint 10 Maximum +ve Bending Moment 36.152 kN.m at -18.076 kN.m at 0.000m from joint 10 Maximum -ve Bending Moment RESULTS FOR COMBINATION 1 MEMBER 11
 Position (m)
 Shear Force (km)
 Axial Comp. Bend. Moment (km)
 dx
 dy
 Slope (mm)
 dx
 Jt. 12 3.000 0.75L 0.50L 0.25L Jt. 11 0.000 Maximum +ve Bending Moment 2.000m 21 m jaint 11 18 076 kM m at

-36.152 kN.m at

0.000m from joint 11

Manimum -ve Denging Moment

*			* EGYPTIAN E	NGINEERS		* JOB : F	RAME
*			* 190 EL SUD	TERS (E E C AN ST.,MOHANDES	ŚIN	*	
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*							
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RESULTS	FOR COM	BINATION 2	MEMBER 1				
Posit:	ion (m)	Shear Force	Axial Comp.	Bend .Moment. (kN.m) -33.215 -20.759 -8.304 4.152 16.608	dх	dy	Slope
from	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 2	3.000	-16.608	45.925	~33.215	0.0	0.0	89.994
0.75L	2.250	-16.608	45.925	-20.759	0.0	0.0	89.999
0.50L	1.500	-16.608	45.925	-8.304	0.0	0.0	90.002
0.25L	0.750	-16.608	45.925	4.152	0.0	0.0	90.002
Jt. 1	0.000	-16.608	45.925	16.608	0.0	0.0	90.000
				.m at 0.000m			
Maximum	-ve Ber	ding Moment	-33.215 kN	.m at 3.000m	from	joint 1	
RESULTS	FOR COM	BINATION 2	MEMBER 2				
Posit:	ion (m)	Shear Force	Axial Comp.	Bend. Moment (kN.m) -16.608 -4.152 8.304 20.759 33.215	dx	dv	Slope
from	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 3	3.000	-16.608	-45.925	-16.608	0.0	0.0	90.000
0.75L	2.250	-16.608	-45.925	-4.152	0.0	0.0	90-002
0.50L	1.500	-16-608	-45.925	8.304	0.0	0.0	90.002
0.251.	0.750	-16.608	-45.925	20.759	0.0	0.0	89.999
Jt. 2	0.000	-16.608	-45.925	33.215	0.0	0.0	89.994
Maximum	-ve Ber	ding Moment		.m at 0.000m .m at 3.600m			
		BINATION 2					
	ion (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dv	Slope
Posit:							
Posit.	m End 1	(kN)	(kN)		(mm)		(dea)
Posit. from	m End 1	(kN) -108-151	(kN) 0-000	(KN.m) ~107.183	(Run)	(mm)	(deg)
Posit from Jt. 5	5.000 3.750	(kN) -108-151 -58-151	(kN) 0.000 0.000	(kN.m) ~107.183 ~3.245	(Run.) 0.0	-0.1	(deg) -0.018
Posit from Jt. 5 0.75L 0.50L	5.000 3.750	(kN) -108.151 -58.151	(kN) 0.000 0.000	(kN.m) ~107.183 ~3.245	(Run) 0.0 0.0	-0.1 -0.3	(deg) -0.018 0.024
Posit from Jt. 5 0.75L 0.50L	m End 1 5.000 3.750 2.500	(kN) -108.151 -58.151 -8.151	(kN) 0.000 0.000 0.000	(kN.m) ~107.183 ~3.245 38.193	(Run) 0.0 0.0	-0.1 -0.3 -0.7	(deg) -0.018 0.024 0.005
Posit: from Jt. 5 0.75L 0.50L 0.25L Jt. 2	m End 1 5.000 3.750 2.500 1.250 0.000	(kn) -108.151 -58.151 -8.151 41.849 91.849	(kN) 0.000 0.000 0.000 0.000 0.000	(KN.m) ~107.183 -3.245 38.193 17.132 -66.430	0.0 0.0 0.0 0.0	-0.1 -0.3 -0.7 -0.5	(deg) -0.018 0.024 0.005 -0.023 -0.006
				Bend.Moment (kN.m) ~107.183 ~3.245 38.193 17.132 ~66.430			(deg) -0.018 0.024 0.005 -0.023 -0.006
Maximum Maximum	+ve Ben	ding Moment	39.024 kN -107.183 kN	.m at 2.296m	from	joint 2 joint 2	
Maximum Maximum RESULTS	+ve Ben	ding Moment ding Moment BINATION 2	39.024 kN -107.183 kN MEMBER 4	.m at 2.296m .m at 5.000m	from	joint 2 joint 2	·
Maximum Maximum RESULTS	+ve Ben	ding Moment ding Moment BINATION 2	39.024 kN -107.183 kN MEMBER 4	.m at 2.296m .m at 5.000m	from	joint 2 joint 2	·
Maximum Maximum RESULTS	+ve Ben	ding Moment ding Moment BINATION 2	39.024 kN -107.183 kN MEMBER 4	.m at 2.296m .m at 5.000m	from	joint 2 joint 2	·
Maximum Maximum RESULTS	+ve Ben	ding Moment ding Moment BINATION 2	39.024 kN -107.183 kN MEMBER 4	.m at 2.296m .m at 5.000m	from	joint 2 joint 2	·
Maximum Maximum RESULTS	+ve Ben	ding Moment ding Moment BINATION 2	39.024 kN -107.183 kN MEMBER 4	.m at 2.296m .m at 5.000m	from	joint 2 joint 2	·
Maximum Maximum RESULTS	+ve Ben	ding Moment ding Moment BINATION 2	39.024 kN -107.183 kN MEMBER 4	.m at 2.296m .m at 5.000m	from	joint 2 joint 2	·
Maximum Maximum RESULTS	+ve Ben	ding Moment ding Moment BINATION 2	39.024 kN -107.183 kN MEMBER 4	.m at 2.296m .m at 5.000m	from	joint 2 joint 2	
Maximum Maximum RESULTS	+ve Ben	ding Moment ding Moment BINATION 2	39.024 kN -107.183 kN MEMBER 4	.m at 2.296m	from	joint 2 joint 2	·

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•	* EGYPTIAN ENGINEERS	* JOB : FRAME	:
*	* FOR COMPUTERS (E E C)		
•	* 190 EL SUDAN ST. MOHANDESSI	(N +	
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SERSESSES (C)COPYLIGHT COMP		***********	KUET:
RESULTS FOR COMBINATION 2	MEMBER 5		
	Axial Comp. Bend.Moment		lope
from End 1 (kN) Jt. 6 3.000 -47.867 0.75L 2.250 -47.867	(kN) (kN.m)	(mm) (mm) (c	
Jt. 6 3.000 -47.867	-185.325 -47.867 -185.325 -11.967	0.0 0.0 90	-000
0.75L 2.250 -47.867	-185.325 -11.967	0.0 0.0 90	-006
0.50L 1.500 -47.867 0.25L 0.750 -47.867	-185.325 23.934 -185.325 59.834	0.1 0.0 90	.005
0.25L 0.750 -47.867	-185.325 59.834 -185.325 95.734		.997 .982
Jt. 5 0.000 -47.867	-185.325 95.734	0.0 -0.1 69	. 902
Maximum +ve Bending Moment	95.734 kN.m at 0.000m	from joint 5	
Maximum +ve Bending Moment Maximum -ve Bending Moment	-47.867 kN.m at 3.000m	from joint 5	
RESULTS FOR COMBINATION 2	MEMBER 6		
Position (m) Shear Force	Axial Comp. Bend.Moment		lope
from End 1 (kN)	(kN) (kN.m)	(mm) (mm) (e	
Jt. 8 7.000 -262.500	0.000 -298.652 0.000 45.879	0.0 -0.1 0	.018
0.75L 5.250 -131.250	0.000 45.879	0.0 -3.6 0	
0.75L 5.250 -131.250 0.50L 3.500 0.000 0.25L 1.750 131.250	0.000 160.723 0.000 45.879	0.0 -6.2 0	.000
0.25L 1.750 131.250	0.000 45.879		. 146
Jt. 5 0.000 262.500	0.000 -298.652	0.0 -0.1 -0	.018
Marriage two Bonding Moment	160 723 by m at 3 500m	from joint 5	
Maximum +ve Bending Moment Maximum -ve Bending Moment	-298.652 kN.m at 0.000m	from joint 5	
RESULTS FOR COMBINATION 2	MEMBER 7		
Position (m) Shear Force	Axial Comp. Bend.Moment	dx dy S	lope
from End 1 (kN)	(kN) (kN.m)	(mm) (mm) (0.0 -0.1 90	deg)
Jt. 8 3.000 47.867	185.325 95.734	0.0 -0.1 90	-018
Jt. 8 3.000 47.867 0.75L 2.250 47.867	185.325 59.834		-003
0.50L 1.500 47.867		0.1 0.0 89	.995
0.25L 0.750 47.867		0.0 0.0 89	.994
Jt. 7 0.000 47.867	185.325 -47.867	0.0 0.0 90	-000
Mariana Ana Banding Moment	95 734 bN m at 3 000m	from joint 7	
Maximum +ve Bending Moment Maximum -ve Bending Moment	-47.867 kN.m at 0.000m	from joint 7	
RESULTS FOR COMBINATION 2			
Position (m) Shear Force	Axial Comp. Bend.Moment	dx dy S	lope
from Pnd 1 (Lu)	(kN) (kN.m)		deg)
from End 1 (kN) Jt. 9 3.000 47.867	-185.325 47.867		0.000
30. 9 3.000 47.867	-103.323 47.007	0.0 0.0 30	,

0.75L	2.250	47.867	-185.325	11.967	0.0	0.0	89.994
0.50L	1.500	47.867	-185.325	-23.934	-0.1	0.0	89.995
0.25L	0.750	47.867	-185.325	-59.834	-0.1	-0.1	90.003
Jt. 8	0.000	47.867	-185.325	-95.734	0.0	-0.1	90.018
	+ve Bending -ve Bending		47.867 kN.m -95.734 kN.m				

:			* EGYPTIAN E	NGINEERS		* JOB : F	RAME
			* FOR COMPU	TERS (E E C AN ST., MOHANDES)	* DATE: 1	992
			* ANALY	SIS RESU	LTS	*SHEET:	17
ANAL	YSE (C)C	opyright Com	outer and Desi	gn Services Lis	ited	1985	
ESULTS	FOR COM	BINATION 2	MEMBER 9				
Posit	ion (m)	Shear Force	Axial Comp.	Bend.Moment (kN.m) -66.430 17.132 38.193 -3.245 -107.183	dx	dy	Slop
fro	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg
t. 11	5.000	-91.849	0.000	-66.430	0.0	0.0	0.00
-75L	3.750	-41.849	0.000	17.132	0.0	-0.5	0.02
.50L	2.500	8.151	0.000	38.193	0.0	-0.7	-0.00
.25L	1.250	58.151	0.000	-3.245	0.0	-0.3	-0.02
							0.01
aximum	tve Ber	ding Moment	39.024 kN	.m at 2.704m	from	joint 8	
aximum	-ve Ber	ding Moment	-107.183 kN	.m at 0.000s	from	joint 8	
ESULTS	FOR COM	BINATION 2	MEMBER 10				
Posit	ion (m)	Shear Force	Axial Comp.	Bend.Moment (kN.m) 33.215 20.759 8.304 -4.152 -16.608	dx	dy	Slop
fro	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg
t. 11	3.000	16.608	45.925	33.215	0.0	0.0	90.00
.75L	2.250	16.608	45.925	20.759	0.0	0.0	90.00
.50L	1.500	16.608	45.925	8.304	0.0	0.0	89.99
.25L	0.750	16.608	45.925	-4.152	0.0	0.0	89.99
t. 10	0.000	16.608	45.925	-16.608	0.0	0.0	90.00
aximum	+ve Ben	ding Moment	33.215 kN	.m at 3.000m	from	joint 10	
AXIMUM	-ve Ben	ding Moment	-16.608 kN	.m at 0.000m	from	joint 10	
		BINATION 2	MEMBER 11				
Posit:	ion (m)	Shear Porce	Axial Comp.	Bend.Moment (kN.m) 16.608 4.152 -8.304 -20.759 -33.215	dx	dy	Slop
fro	n End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg
t. 12	3.000	16.608	-45.925	16.608	0.0	0.0	90.00
.75L	2.250	16.608	-45.925	4.152	0.0	0.0	89.99
.50L	1.500	16.608	-45.925	-8.304	0.0	0.0	89.99
.25L	0.750	16.608	-45.925	-20.759	0.0	0.0	90.00
	0.000	16.608	-45.925	-33.215	0.0	0.0	90.00
t. 11							
				.m at 3.000m			

			######################################		*******	
RESULTS FOR COM	4BINATION 3	MEMBER 1				
Position (m)	Shear Force	Axial Comp.	Bend. Moment	dx	dy	Slope
from End 1	· (kN)	(kN)	- (kN-m).	(mm)	(mm)	(deg)
Jt. 2 3.000	-33.823	89.606	-67.647	0.0	0.0	89.987
0.75L 2.250	-33.823	89.606	-42.279	-0.1	0.0	89.998
0.50L 1.500	-33.823	89.606	-16.912	-0.1	0.0	90.003
0.25L 0.750	-33.823	89.606	8.456	0.0	0.0	90.004
Position (m) from End 1 Jt. 2 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 1 0.000	-33.823	89.606	33.823	0.0	0.0	90.000
Maximum +ve Ber	nding Moment	33.823 kN	.m at 0.000m .m at 3.000m	from	joint l	
Maximum -ve Ber	nding Moment	-67.647 kN	.m at 3.000m	from	joint l	

•		* EGYPTIAN E	NGINEERS		* JOB : F	RAME
*					-*	
•		 FOR COMPU 	TERS (EEC)	* DATE: 1	992
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RESULTS FOR CO	MBINATION 3	MEMBER 2	44894FL10FF88EE			
RESULTS FOR CO	MBINATION 3	MEMBER 2	44894FL10FF88EE			
RESULTS FOR CO	MBINATION 3	MEMBER 2	42294FL10FF88EE			
RESULTS FOR CO	MBINATION 3	MEMBER 2	42294FL10FF88EE			
RESULTS FOR CO	MBINATION 3	MEMBER 2	42294FL10FF88EE			
RESULTS FOR CO	MBINATION 3	MEMBER 2	42294FL10FF88EE			
RESULTS FOR CO	MBINATION 3	MEMBER 2	42294FL10FF88EE			
RESULTS FOR CO	MBINATION 3	MEMBER 2	42294FL10FF88EE			
*********	MBINATION 3	MEMBER 2	42294FL10FF88EE			
RESULTS FOR COL Position (m) from End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 2 0.000	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606	Bend.Moment (kN.m) -33.823 -8.456 16.912 42.279 67.647	dx (mm) 0.0 0.0 0.1 0.1	dy (mm) 0.0 0.0 0.0 0.0	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 2 0.000	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606	Bend.Moment (kN.m) -33.823 -8.456 16.912 42.279 67.647	dx (mm) 0.0 0.0 0.1 0.1	dy (mm) 0.0 0.0 0.0 0.0	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 2 0.000	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606	Bend.Moment (kN.m) -33.823 -8.456 16.912 42.279 67.647	dx (mm) 0.0 0.0 0.1 0.1	dy (mm) 0.0 0.0 0.0 0.0	Slope (deg) 90.000 90.004 90.003 89.998 89.987
Position (m) From End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500 Jt. 2 0.000 Maximum +ve Bendarimum +ve Bendarimum -ve Benda	MBINATION 3 Shear Force (kN) -33.823 -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 67.647 kN -33.823 kN	42294FL10FF88EE	dx (mm) 0.0 0.0 0.1 0.1	dy (mm) 0.0 0.0 0.0 0.0	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 2 0.000	MBINATION 3 Shear Force (kN) -33.823 -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 67.647 kN -33.823 kN	Bend.Moment (kN.m) -33.823 -8.456 16.912 42.279 67.647	dx (mm) 0.0 0.0 0.1 0.1	dy (mm) 0.0 0.0 0.0 0.0	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 1.3 3.000 0.751 2.250 0.501 1.500 0.251 0.750 Jt. 2 0.000 Maximum +ve Ber RESULTS FOR COL	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 -89.308 47.647 kN -33.823 kN	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0	dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 2	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 1.3 3.000 0.751 2.250 0.501 1.500 0.251 0.750 Jt. 2 0.000 Maximum +ve Ber RESULTS FOR COL	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 -89.308 47.647 kN -33.823 kN	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0	dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 2	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 1.3 3.000 0.751 2.250 0.501 1.500 0.251 0.750 Jt. 2 0.000 Maximum +ve Ber RESULTS FOR COL	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 -89.308 47.647 kN -33.823 kN	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0	dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 2	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 1.3 3.000 0.751 2.250 0.501 1.500 0.251 0.750 Jt. 2 0.000 Maximum +ve Ber RESULTS FOR COL	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 -89.308 47.647 kN -33.823 kN	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0	dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 2	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 1.3 3.000 0.751 2.250 0.501 1.500 0.251 0.750 Jt. 2 0.000 Maximum +ve Ber RESULTS FOR COL	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 -89.308 47.647 kN -33.823 kN	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0	dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 2	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 1.3 3.000 0.751 2.250 0.501 1.500 0.251 0.750 Jt. 2 0.000 Maximum +ve Ber RESULTS FOR COL	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 -89.308 47.647 kN -33.823 kN	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0	dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 2	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 1.3 3.000 0.751 2.250 0.501 1.500 0.251 0.750 Jt. 2 0.000 Maximum +ve Ber RESULTS FOR COL	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 -89.308 47.647 kN -33.823 kN	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0	dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 2	Slope (deg) 90.000 90.004 90.003 89.998 89.987
RESULTS FOR COL Position (m) from End 1 1.3 3.000 0.751 2.250 0.501 1.500 0.251 0.750 Jt. 2 0.000 Maximum +ve Ber RESULTS FOR COL	MBINATION 3 Shear Force (kn) -33.823 -33.823 -33.823 -33.823 adding Moment nding Moment	MEMBER 2 Axial Comp. (kN) -89.606 -89.606 -89.606 -89.606 -89.606 -89.308 47.647 kN -33.823 kN	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0	dy (mm) 0.0 0.0 0.0 0.0 0.0 joint 2	Slope (deg) 90.000 90.004 90.003 89.998 89.987
Position (m) From End 1 15.3 3.000 0.751 2.250 0.551 0.750 0.751	MBINATION 3 Shear Force (kN) -33.823 -33.823 -33.823 -33.823 -33.823 anding Moment ding Moment MBINATION 3 Shear Force (kN) -195.788 -102.038 65.662 179.212	MEMBER 2 Axial Comp. (kN) -99.606 -89.606 -89.606 -89.606 -89.606 -89.606 AB.606 -89.606 -89.606 -89.606 -90.600 -90.000 -90.000 -90.000 -90.000	Bend. Moment (kN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m Bend. Moment (kN.m) -176.734 9.408 78.361 30.127 -135.294	dx (mm) 0.0 0.0 0.1 0.1 0.0 from from 0.0 0.0 0.0	dy (mm) 0.0 0.0 0.0 0.0 joint 2 joint 2 10 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Slope (deg) 90.000 90.004 90.003 89.998 89.987
Position (m) From End 1 15.3 3.000 0.751 2.250 0.551 0.750 0.751	MBINATION 3 Shear Force (kN) -33.823 -33.823 -33.823 -33.823 -33.823 anding Moment ding Moment MBINATION 3 Shear Force (kN) -195.788 -102.038 65.662 179.212	MEMBER 2 Axial Comp. (kN) -99.606 -89.606 -89.606 -89.606 -89.606 -89.606 AB.606 -89.606 -89.606 -89.606 -90.600 -90.000 -90.000 -90.000 -90.000	Bend. Moment (kN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m Bend. Moment (kN.m) -176.734 9.408 78.361 30.127 -135.294	dx (mm) 0.0 0.0 0.1 0.1 0.0 from from 0.0 0.0 0.0	dy (mm) 0.0 0.0 0.0 0.0 joint 2 joint 2 10 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Slope (deg) 90.000 90.004 90.003 89.998 89.987
Position (m) From End 1 15.3 3.000 0.751 2.250 0.551 0.750 0.751	MBINATION 3 Shear Force (kN) -33.823 -33.823 -33.823 -33.823 -33.823 anding Moment ding Moment MBINATION 3 Shear Force (kN) -195.788 -102.038 65.662 179.212	MEMBER 2 Axial Comp. (kN) -99.606 -89.606 -89.606 -89.606 -89.606 -89.606 AB.606 -89.606 -89.606 -89.606 -90.600 -90.000 -90.000 -90.000 -90.000	Bend. Moment (KN.m) -33.823 -8.456 16.912 42.279 67.647 .m at 0.000m m at 3.000m	dx (mm) 0.0 0.0 0.1 0.1 0.0 from from 0.0 0.0 0.0	dy (mm) 0.0 0.0 0.0 0.0 joint 2 joint 2 10 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Slope (deg) 90.000 90.004 90.003 89.998 89.987

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 Position (m)
 Shear Force (km)
 Axial Comp. (km)
 Bend Moment (km)
 dx (km)
 dy (mm)
 (app)
 degl
 Jope

 Jt. 5
 3.000
 -31.697
 229.651
 -63.394
 0.0
 -0.1
 89.988

 0.75L
 2.250
 -31.697
 229.651
 -39.622
 -0.1
 -0.1
 89.988

RESULTS FOR COMBINATION 3 MEMBER 4

0.501	1 500	31 603	220 651	-15 949	-0.1	0.0	90.003
0.251.	0.750	-31.677	229.651	7 924	0.0	0.0	90.004
Jt. 4	0.000	-31.697	229.651	31.697	0.0	0.0	90.000
		-31.037	,2277002	-15.849 7.924 31.697			
Maximum	+ve Ben	ding Moment	31.697 kN.	.m at 0.000m	from	joint 4	
Maximum	-ve Ben	ding Moment	-63.394 kN.	m at 0.000m	from	joint 4	
RESULTS	FOR COM	BINATION 3	MEMBER 5				
							61
POSIT	TOU (W)	Shear Force	Axial Comp.	Beng.Moment	(mm)	(m)	(dea)
T+ 6	3 000	-31 697	-229 651	-31 697	0.0	0.0	90.000
0.751.	2.250	-31.697	-229 651	-7.924	0.0	0.0	90.004
0.50L	1.500	-31.697	-229.651	15.849	0.1	0.0	90.003
0.25L	0.750	-31.697	-229.651	39.622	0.1	-0.1	89.998
Jt. 5	0.000	-31.697	-229.651	Bend.Moment (kN.m) -31.697 -7.924 15.849 39.622 63.394	0.0	-0.1	89.988
Maximum	-ve Ben	ding Moment	-31.697 kN.	m at 0.000m m at 3.000m	from	ioint 5	
•			* EGYPTIAN EN	NGINEERS		* JOB : F	RAME
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* ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5	FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000	Depyright Composition 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513	• FOR COMPUT • 190 EL SUDD • A N A L Y S DULET and Designment 6 Axial Comp. (kN) 0.000 0.000 0.000 0.000	DERS (E E C AN ST., MOHANDES S I S R E S U G Services Lim Bend. Moment (kN.m) -296.428 46.330 159.400 42.782 -303.522	dx (mm) 0.0 0.0 0.0 0.0	* DATE: 1 *SHEET:	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000	Copyright Com BINATION 3 Shear Force (KN) -261.487 -130.227 1.013 122.263 263.513 adding Homent ding Homent	* FOR COMPUT * 190 EL SUDA * A N A L Y S PUTER and Design MEMBER 6 Axial Comp. (kN) 0.000 0.000 0.000 0.000 0.000	Density of the second s	dx (mm) 0.0 0.0 0.0 0.0 from	* DATE: 1 *	992 19 Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5 Maximum Maximum	YSE (C)C FOR COM- ion (m) m End 1 7.000 3.500 1.750 0.000 +ve Ben	Copyright Comp BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 ading Moment ding Moment	* FOR COMPUT * 190 EL SUD * A N A L Y S * DULET and Design MEMBER 6 Axial Comp. (kN) 0.000 0.000 0.000 0.000 159,407 kN303.522 kN.	TERS (E E C AN ST., MOHANDES S I S R E S U gn Services Lim	dx (mm) 0.0 0.0 0.0 0.0 from	* DATE: 1 *	992 19 Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * * ANAL RESULTS Posit fro Jt. 8 0.75L 0.55L 0.25L Jt. 5 Maximum Aximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000 +ve Ben -ve Ben	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 adding Moment BINATION 3	• FOR COMPUT • 190 EL SUDO • A N A L Y S PULEY and Design MEMBER 6 Axial Comp. 0.000 0.000 0.000 0.000 159.407 kN303.522 kN.	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: 1 *SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * * ANAL RESULTS Posit fro Jt. 8 0.75L 0.55L 0.25L Jt. 5 Maximum Aximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000 +ve Ben -ve Ben	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 adding Moment BINATION 3	• FOR COMPUT • 190 EL SUDO • A N A L Y S PULEY and Design MEMBER 6 Axial Comp. 0.000 0.000 0.000 0.000 159.407 kN303.522 kN.	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: 1 *SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5 Maximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000 +ve Ben -ve Ben	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 adding Moment BINATION 3	• FOR COMPUT • 190 EL SUDO • A N A L Y S PULEY and Design MEMBER 6 Axial Comp. 0.000 0.000 0.000 0.000 159.407 kN303.522 kN.	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: 1 *SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5 Maximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000 +ve Ben -ve Ben	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 adding Moment BINATION 3	• FOR COMPUT • 190 EL SUDO • A N A L Y S PULEY and Design MEMBER 6 Axial Comp. 0.000 0.000 0.000 0.000 159.407 kN303.522 kN.	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: 1 *SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5 Maximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000 +ve Ben -ve Ben	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 adding Moment BINATION 3	• FOR COMPUT • 190 EL SUDO • A N A L Y S PULEY and Design MEMBER 6 Axial Comp. 0.000 0.000 0.000 0.000 159.407 kN303.522 kN.	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: 1 *SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5 Maximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000 +ve Ben -ve Ben	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 adding Moment BINATION 3	• FOR COMPUT • 190 EL SUDO • A N A L Y S PULEY and Design MEMBER 6 Axial Comp. 0.000 0.000 0.000 0.000 159.407 kN303.522 kN.	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: 1 *SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * * ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5 Maximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000 +ve Ben -ve Ben	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 adding Moment BINATION 3	• FOR COMPUT • 190 EL SUDO • A N A L Y S PULEY and Design MEMBER 6 Axial Comp. 0.000 0.000 0.000 0.000 159.407 kN303.522 kN.	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: 1 *SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
* * ANAL RESULTS Posit fro Jt. 8 0.75L 0.50L 0.25L Jt. 5 Maximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 1.750 0.000 +ve Ben -ve Ben	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 122.263 263.513 adding Moment BINATION 3	• FOR COMPUT • 190 EL SUDO • A N A L Y S PULEY and Design MEMBER 6 Axial Comp. 0.000 0.000 0.000 0.000 159.407 kN303.522 kN.	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 0.0 0.0 from	* DATE: 1 *SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5	Slope (deg) 0.018 0.144 -0.001 -0.145 -0.012
** * ANAL * Posit for Jt. 8 0.75L 0.50L	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 0.000 +ve Ben -ve Ben -ve Ben 1 3.000 2.250 1.500 0.750 0.000	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 112.263 263.513 adding Homent BINATION 3 Shear Force (kN) 47.365 47.365 47.365 47.365 47.365 47.365	* FOR COMPUT* * 190 EL SUDO EL SUDO * A N A L Y S PULEY and Design MEMBER 6 Axial Comp., (kN) 0.000 0.000 0.000 0.000 0.000 0.000 159.407 kN303.522 kN. MEMBER 7 Axial Comp. (kN) 184.788 184.788 184.788	TERS (E E C C LN ST., MOHANDES S I S R E S U pn Services Lim (N.m.) -296.428 (-330 45.330 155.400 42.782 -303.522 (-340 m at 3.514m at 0.000m 94.729 55.206 23.682 -11.841 -47.365	dx (mm) 0.0 0.0 0.0 from from 0.1 0.0 0.0	DATE: 1 **SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5 joint 5 -0.1 -0.1 -0.0 0.0	992 Slope (deg) 0.018 0.018 90.018 90.018 90.003 89.994 90.000
** * ANAL * Posit for Jt. 8 0.75L 0.50L	YSE (C)C FOR COM ion (m) m End 1 7.000 5.250 3.500 0.000 +ve Ben -ve Ben -ve Ben 1 3.000 2.250 1.500 0.750 0.000	Copyright Com BINATION 3 Shear Force (kN) -261.487 -130.237 1.013 112.263 263.513 adding Homent BINATION 3 Shear Force (kN) 47.365 47.365 47.365 47.365 47.365 47.365	* FOR COMPUT* * 190 EL SUDO EL SUDO * A N A L Y S PULEY and Design MEMBER 6 Axial Comp., (kN) 0.000 0.000 0.000 0.000 0.000 0.000 159.407 kN303.522 kN. MEMBER 7 Axial Comp. (kN) 184.788 184.788 184.788	TERS (E E C NN ST., MOHANDES S I S R E S U pn Services Lim (N. m.) -296.428 46.330 159.400 42.782 -303.522 mat 3.514m at 0.000m mat 0.000m	dx (mm) 0.0 0.0 0.0 from from 0.1 0.0 0.0	DATE: 1 **SHEET: 1985 dy (mm) -0.1 -3.6 -6.1 -3.5 -0.1 joint 5 joint 5 -0.1 -0.1 -0.0 0.0	992 Slope (deg) 0.018 0.018 90.018 90.018 90.003 89.994 90.000

RESULTS FOR COMBINATION 3 MEMBER 8

from End 1 Jt. 9 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 8 0.000 Maximum +ve Ben Maximum -ve Ben	(kN) 47.365 47.365 47.365 47.365 47.365 ding Moment ding Moment	(kN) -184.788 -184.788 -184.788 -184.788 -184.788 47.365 kN. -94.729 kN.	11.841 -23.682 -59.206 -94.729 m at 3.000m m at 0.000m	(mm) 0.0 0.0 -0.1 -0.1 0.0 from	(mm) 0.0 0.0 0.0 -0.1 -0.1 joint 8	(deg) 90.000 89.994 89.996 90.003 90.018
RESULTS FOR COM						
Position (m) from End 1 Jt. 11 5.000 0.75L 3.750 0.50L 2.500 0.25L 1.250 Jt. 8 0.000 Maximum +ve Ben Maximum -ve Ben	Shear Force (kN) -91.911 -41.911 8.089 58.089 108.089 dding Moment	Axial Comp. (kN) 0.000 0.000 0.000 0.000 0.000 0.000 39.070 kN	(kN.m) -66.527 17.113 38.252 -3.109 -106.970 m at 2.702m	(mm) 0.0 0.0 0.0 0.0 0.0 from	(mm) 0.0 -0.5 -0.7 -0.3 -0.1 joint 8	(deg) 0.006 0.023 -0.005 -0.025 0.018
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RESULTS	FOR COM	BINATION 3	MEMBER 10				
Posit	ion (m)	Shear Force	Axial Comp.	Bend.Moment	ďх	dy	Slope
fro	m End 1	(kN)	(kÑ) 45.956	(kN.m)	(mm)	(mm)	(deg)
Jt. 11	3.000	16.632	45.956	33.263	0.0		90.006
		16.632		20.790	0.0	0.0	90.001
0.50L	1.500	16.632	45.956	8.316	0.0	0.0	89.998
0.25L	0.750	16.632	45.956	-4.158	0.0	0.0	89.998
Jt. 10	0.000	16.632	45.956	-16.632	0.0	0.0	90.000
			33.263 kN			joint 10	
Maximum	-ve Ben	ding Moment	-16.632 kN	.m at 0.000s	from	joint 10	
RESULTS	FOR COM	BINATION 3	MEMBER 11				
	ion (m)		Axial Comp.	Bend.Moment	dx	dy	Slope
	na Endi 1		(kN)	(kN.m)	(mm)	(mm)	(deg)
	3.000	16.632	-45.956	16.632	0.0	0.0	90.000
Jt. 12							
0.75L	2.250	16.632	-45.956	4.158 -8.316	0.0	0.0	89.998

0.25L 0.750 Jt. 11 0.000	16.632 16.632	-45.956 -45.956	-20.790 -33.263	0.0	0.0	90.001 90.006
Maximum +ve Bendir Maximum -ve Bendir	g Moment	16.632 kN.m -33.263 kN.m	at 0.000m	from		
RESULTS FOR COMBIN		MEMBER 1				
Position (m) Si	near Force	Axial Comp. B	end.Moment	dx (mm)	dy (mm)	Slope (deg)
	-33.848	89.637	-67.695	0.0		89.987
0.75L 2.250	-33.846	89.637	-42.309	-0.1 -0.1		89.998 90.003
	-33.848		-16.924 8.462	0.0		90.003
0.25L 0.750	-33.848	89.637	33.848	0.0		90.000
Jt. 1 0.000	-33.848	89.637	33.846	0.0	0.0	30.000
Maximum +ve Bendin Maximum -ve Bendin			at 0.000m		joint 1	
RESULTS FOR COMBI	NATION 4	MEMBER 2				
Position (m) S	hear Force		end.Moment	dx		
from End 1	(kN)	(kN)	(kN.m)	(mm)		
Jt. 3 3.000	-33.848	-89.637	-33.848	0.0	0.0	90.000
0.75L 2.250	-33.848	-89.637	-8.462	0.0		90.004
0.50L 1.500			16.924			
0.25L 0.750	-33.848	-89.637	42.309			89.998
Jt. 2 0.000	-33.848	-89.637	67.695	0.0	0.0	89.987
Maximum +ve Bendi	ng Moment	67.695 kN.m	at 0.000m	from	joint 2	
Maximum -ve Bendi		-33.848 kN.m	at 3.000m	from	joint 2	

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RESULTS	FOR COM	BINATION 4	MEMBER 3				
			Axial Comp.	Bend.Moment	dx	dy	
fro	a End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 5	5.000	-195.726	0.000	-176.520	0.0	-0.1	-0.012
0.75L	3.750	-101.976	0.000	9.544	0.0	-0.8	0.051
0.501.	2.500	-B.226	0.000	78.420	0.0	-1.5	0.005
0.25L	1.250	85.524	0.000	30.108	0.0	-1.0	-0.049
Jt. 2	0.000	179.274	0.000	-135.390	0.0	0.0	-0.013
Maximum	+ve Bene	ding Moment	78.871 kN	.m at 2.39	Om from	joint 2	
Maximum	-ve Bend	ding Moment	-176.520 kN	.m at 5.00	Om from	joint 2	

RESULTS FOR COMBINATION 4 MEMBER 4

Posit	ion (m)	Shear Force	Avial Comp	Bend Wo		4-	dy	Slope
	n End 1	(kN)		, Delia. 110	W ml	dx (mm)	(mm) -0.1 -0.1 0.0 0.0	(deg)
	3.000		229.11	62	300	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-0.1	89.988
0.751	2 250	-31.195 -31.195 -31.195	229.113	-30	903	-0.1	-0.1	89.998
0.731	2.250 1.500	-31.195	229.113	-30	507	-0.1	0.0	90.003
0.25L	0.750	-31.195	229.11	-13	377	-0.1	0.0	90.004
	0.000		229.11.		.195	0.0	0.0	90.000
JL. 4	0.000	-31.193	229.11	, 31	.193	0.0	0.0	90.000
Maximum	+ve Ben	ding Moment ding Moment	31.195 1	kN.m at	0.000m	from	joint 4	
Maximum	-ve Ben	ding Moment	-62.389	(N.m at	3.000m	from	joint 4	
		BINATION 4						
	ion (m)	Shear Force	Axial Comp	. Bend.Mo	ment	dx	dy (mm) 0.0 0.0 -0.1 -0.1	Slope
fro	m End 1	(kN)	(kN) (k	(N.m)	(mm)	(mm)	(deg)
Jt. 6	3.000	-31.195	-229.11	3 –31	.195	0.0	0.0	90.000
0.75L	2.250	-31.195	-229.11	3 -7	.799	0.0	0.0	90.004
0.50L	1.500	~31.195	-229.11	3 15	.597	0.1	0.0	90.003
0.25%	0.750	~31.195	-229.11	3 38	. 993	0.1	-0.1	89.998
Jt. 5	2.250 1.500 0.750 0.000	-31.195	(kN ~229.11 ~229.11 ~229.11 ~229.11 ~229.11	3 62	.389	0.0	-0.1	89.988
Maximum	TVE Den	ding Moment ding Moment	02.307	KN.M at	0.000	LICH	Joint 5	
Maximum	-ve pen	ding Moment	-31.195	KN.M at	3.000m	trom	Joint 5	
		BINATION 4						
Posit	ion (m)	Shear Force	Axial Comp	. Bend.Mo	ment	dx	dv	Slope
fro	m End 1	(kN) -262.500 -131.250	(kN)	N m	/mm\	(mm)	(deg)
Jt. B	7.000	-262.500	0.00	ó _3Ò1	798	0.0	-0.1	0.012
0 751	5 350	-121 750	0.00	0 -301	222	0.0	-0.1	0.012
0.736	3.230	-131.230	0.00		1.233	0.0	-3.3	0.143
0.301	3.300	121 250	0.00	0 130		0.0	-0.0	0.000
0.420	1.750	131.250	0.00	U 43	1.233	0.0	-3.5	-0.143
		-131.250 0.000 131.250 262.500						
Maximum	+ve Ben	ding Moment ding Moment	158.077	kN.m at	3.500m	from	joint 5	
Maximum	-ve Ben	ding Moment	-301.298	kN.m at	0.000m	from	joint 5	
		************		2 字写写明绘标点之》			=======	********
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:			* FOR COM * 190 EL S					1992
•			ANAL	YSISF	RESU	LTS	*SHEET:	22
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		opyright comp						
Posit	ion (m)	Shear Force	Axial Comp	. Bend.Mo	ment	dx	dy	Slope
tro	m Endil	(kN)	(kn) ()	(N.m.)	(mm)	(mm)	(deg)
Jt. 8	3.000	31.195	229.11	3 62	2.389	0.0	-0.1	90.012
0.75L	2.250	31.195	229.11	3 36	3.993	0.1	-0.1	90.002
0.50L								
	1.500	31.195	229.11	3 15	5.597	0.1	0.0	89.997
0.25L	0.750	Shear Force (km) 31.195 31.195 31.195 31.195	229.11 229.11	3 15 3 -7	5.597 1.799	0.1	0.0	89.997 89.996

Jt. 7 0.000	31.195	229.113	-31.195	0.0	0.0	90.000
Mandania	w	62 200 km -	2 000=	from	ioint 7	
Maximum +ve Ber Maximum -ve Ber	ding Moment	-31.195 kN.m	at 0.000m	from	joint 7	
PETTRON -AG DEL	uing noment	-31.173 KM.				
RESULTS FOR COM						
Position (m)	Shear Porce	Axial Comp. E	Bend.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 9 3.000	31.195	-229.113	31.195	0.0	0.0	90.000
0.75L 2.250	31.195	-229.113	7.799	0.0	0.0	89.996
0.50L 1.500	31.195	-229.113	-15.597	-0.1	0.0	89.997
0.25L 0.750	31.195	-229.113	-38.993	-0.1	-0.1	90.002
Position (m) from End 1 Jt. 9 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 8 0.000	31.195	-229.113	-62.389	0.0	-0.1	90.012
		31.195 kN.: -62.389 kN.:				
Maximum -ve Ber	nding Moment	-62.389 kM.1	m at 0.000m	from	joint 8	
RESULTS FOR CO	MBINATION 4	MEMBER 9				
Position (m) from End 1 Jt. 11 5.000 0.75L 3.750 0.50L 2.500 0.25L 1.250 Jt. 8 0.000	Shear Force	Axial Comp.	Bend. Moment	dx	dy	Slope
from End 1	(kH)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 11 5.000	-179.274	0.000	-135.390	0.0	0.0	0.013
0.75L 3.750	-R5.524	0.000	30.108	0.0	-1.0	0.049
0.50L 2.500	8.226	0.000	78.420	0.0	-1.5	-0.005
0.25L 1.250	101.976	0.000	9.544	0.0	-0.8	-0.051
Jt. 8 0.000	195.726	0.000	-176.520	0.0	-0.1	0.012
		78.871 kN.				
Maximum -ve Be	nding Moment	-176.520 kN.:	m at 0.000m	from	joint 8	
RESULTS FOR CO						
Parities (-)	Cheny Torne	Axial Comp. (kN) 89.637 89.637 89.637 89.637	Bond Moment	4-	du	S)one
from End 1	(FR)	(FN)	(kN.m)	(mm)	/mm)	(deg)
.T+ 11 3.000	33.848	89 637	67.695	, 0.0	0.0	90.013
0.751. 3.750	33.848	89.637	42.309	0.1	0.0	90.002
0.501. 1.500	33.040	89.637	16.924	0.1	0.0	89.997
0.251. 0.750	33.040	89.637	-8-462	0.0	0.0	89.996
Jt. 10 0.000	33.848	89.637	-33.848	0.0	0.0	90.000
Maximum +ve Be	nding Moment	67.695 kN.:	m at 3.000m	from	joint 10	
Maximum -ve Be	nding Moment	-33.848 kN.:	mat 0.000m	from	joint 10	

•	• EGYPTIAN ENGINEERS	* JOB : FRAME
*	*	•
•	FOR COMPUTERS (E E C)	* DATE: 1992
•		*
•	· ANALYSIS RESULTS	*SHEET: 23
*		
* ANALYSE (C)Convright Compu	ter and Design Services Limited 1	995

RESULTS FOR COMBINATION 4 MEMBER 11

Position (m) Shear Force	Axial Comp. Bend.Moment	dx	dy	Slope
from End 1 (kN) Jt. 12 3.000 33.848 0.75L 2.250 33.848 0.50L 1.500 33.848	(kN) (kN.m)	(mm)	(mm)	(deg)
Jt. 12 3.000 33.848	-89.637 33.848	0.0	0.0	90.000
0.75L 2.250 33.848	-89.637 8.462	0.0	0.0	89.996
0.50L 1.500 33.848	-89.637 -16.924	-0.1	0.0	89.997
0.25L 0.750 33.848	-89.637 8.462 -89.637 -16.924 -89.637 -42.309	-0.1	0.0	90.002
0.50L 1.500 33.848 0.25L 0.750 33.848 Jt. 11 0.000 33.848	-89.637 -67.695	0.0	0.0	90.013
Maximum +ve Bending Moment	33.848 kN.m at 3.000m	from	joint 11	
Maximum -ve Bending Moment	-67.695 kN.m at 0.000m	from	joint 11	
				waaaaa
RESULTS FOR COMBINATION 5	MEMBER 1			
Position (m) Shear Force	Axial Comp. Bend.Moment	dx	4	Slope
from End 1 (bu)	Axiai Comp. Bend. Homent		(\)	Stope
from End 1 (kN) Jt. 2 3.000 -35.292	(kN) (kN.m)	(munt)	(mm) 0.0	(deg)
30. 2 3.000 -35.292	91.519 -/0.584	0.0	0.0	89.987
0.75L 2.250 -35.292	91.519 -44.115	-0.1	0.0	89.997
0.50L 1.500 -35.292	91.519 -17.646	-0.1	0.0	90.003
0.25L 0.750 -35.292	91.519 8.823	0.0	0.0	90.004
Jt. 1 0.000 -35.292	91.519 -70.584 91.519 -44.115 91.519 -17.646 91.519 8.823 91.519 35.292	0.0	0.0	90.000
Maximum +ve Bending Moment	35.292 kN.m at 0.000m -70.584 kN.m at 3.000m	from	joint 1	
Maximum -ve Bending Moment	-70.584 kN.m at 3.000m	from	joint 1	
RESULTS FOR COMBINATION 5	MEMBER 2			
Position (m) Shear Force	Axial Comp. Bend.Moment	dx	dy	Slope
from End 1 (kN)	(kN) (kN.m)			(deg)
Jt. 3 3.000 -35.292	-91.519 -35.292	0.0	0.0	90.000
Jt. 3 3.000 -35.292 0.75L 2.250 -35.292	-91.519 -35.292 -91.519 -8.823	0.0	0.0	90.000
Jt. 3 3.000 -35.292 0.75L 2.250 -35.292 0.50L 1.500 -35.292	-91.519 -35.292 -91.519 -8.823 -91.519 17.646	0.0 0.0 0.1	0.0 0.0	90.000
Jt. 3 3.000 -35.292 0.75L 2.250 -35.292 0.50L 1.500 -35.292 0.25L 0.750 -35.292	-91.519 -35.292 -91.519 -8.823 -91.519 17.646 -91.519 44.115	0.0 0.0 0.1	0.0 0.0 0.0	90.000 90.004 90.003
0.50L 1.500 -35.292 0.25L 0.750 -35.292	-91.519 17.646 -91.519 44.115	0.0 0.1 0.1	0.0 0.0 0.0	90.004 90.003 89.997
0.50L 1.500 -35.292 0.25L 0.750 -35.292 Jt. 2 0.000 -35.292	-91.519 17.646 -91.519 44.115 -91.519 70.584	0.0 0.1 0.1 0.0	0.0 0.0 0.0 0.0	90.004 90.003 89.997
0.50L 1.500 -35.292 0.25L 0.750 -35.292 Jt. 2 0.000 -35.292	-91.519 17.646 -91.519 44.115 -91.519 70.584	0.0 0.1 0.1 0.0	0.0 0.0 0.0 0.0	90.004 90.003 89.997
0.50L 1.500 -35.292 0.25L 0.750 -35.292 Jt. 2 0.000 -35.292 Maximum +ve Bending Homent Maximum -ve Bending Moment	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m	0.0 0.1 0.1 0.0	0.0 0.0 0.0 0.0	90.004 90.003 89.997
0.50L 1.500 -35.292 0.25L 0.750 -35.292 Jt. 2 0.000 -35.292 Maximum +ve Bending Homent Maximum -ve Bending Homent	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m	0.0 0.1 0.1 0.0	0.0 0.0 0.0 0.0	90.004 90.003 89.997
0.50L 1.500 -35.292 0.25L 0.750 -35.292 Jt. 2 0.000 -35.292 Maximum +ve Bending Homent Maximum -ve Bending Homent RESULTS FOR COMBINATION 5	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m	0.0 0.1 0.1 0.0 from	0.0 0.0 0.0 0.0 joint 2 joint 2	90.004 90.003 89.997 89.987
0.50L 1.500 -35.292 D.25L 0.750 -35.292 Jt. 2 0.000 -35.292 MAXIMUM +Ve Bending Moment RESULTS FOR COMBINATION 5 Position (m) Shear Force	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kn.m at 0.000m -35.292 kn.m at 3.000m	0.0 0.1 0.1 0.0 from	0.0 0.0 0.0 0.0 joint 2 joint 2	90.004 90.003 89.997 89.987
0.50L 1.500 -35.292 D.25L 0.750 -35.292 Jt. 2 0.000 -35.292 Maximum +ve Bending Moment Maximum -ve Bending Moment RESULTS FOR COMBINATION 5 Position (m) Shear Force from End 1 (kH)	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m MEMBER 3 Axial Comp. Bend. Moment	0.0 0.1 0.1 0.0 from from	0.0 0.0 0.0 0.0 joint 2 joint 2	90.004 90.003 89.997 89.987
0.50L 1.500 -35.292 Jt. 2 0.000 -35.292 MAXIMUM +ve Bending Moment MAXIMUM -ve Bending Moment RESULTS FOR COMBINATION 5 Position (m) Shear Force from End 1 (km) Jt. 5 5.000 -191.963	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m MEMBER 3 Axial Comp. Bend. Moment	0.0 0.1 0.1 0.0 from from	0.0 0.0 0.0 0.0 joint 2 joint 2	90.004 90.003 89.997 89.987 Slope (deg) 0.000
0.50L 1.500 -35.292 Jt. 2 0.000 -35.292 Jt. 2 0.000 -35.292 MAXIMUM +ve Bending Moment MESULTS FOR COMBINATION 5 Position (m) Shear Porce from End 1 (kH) Jt. 5 5.000 -191.963 Jt. 5.750 -798.213	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m MEMBER 3 Axial Comp. Bend. Moment	0.0 0.1 0.1 0.0 from from	0.0 0.0 0.0 0.0 joint 2 joint 2	90.004 90.003 89.997 89.987 Slope (deg) 0.054
0.50L 1.500 -35.292 Jt. 2 0.000 -35.292 Jt. 2 0.000 -35.292 MAXIMUM +VE Bending Moment MESULTS FOR COMBINATION 5 Position (m) Shear Force from End 1 (km) Jt. 5 5.000 -191.963 0.75L 3.750 -98.213 0.50L 2.500 -4.463	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m MEMBER 3 Axial Comp. Bend. Moment	0.0 0.1 0.1 0.0 from from	0.0 0.0 0.0 0.0 joint 2 joint 2	90.004 90.003 89.997 89.987 Slope (deg) 0.000 0.054 0.003
0.50L 1.500 -35.292 Jt. 2 0.000 -35.292 Jt. 2 0.000 -35.292 MAXIMUM +ve Bending Moment MESULTS FOR COMBINATION 5 Position (m) Shear Porce from End 1 (kg) Jt. 5.000 -991.963 0.75L 3.750 -98.213 0.50L 2.500 -4.463 0.25L 1.250 89.287	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m MEMBER 3 Axial Comp. Bend.Moment (kH chi.m) 0.000 17.878 0.000 82.050 0.000 82.050	0.0 0.1 0.0 from from dx (mm) 0.0 0.0	0.0 0.0 0.0 0.0 joint 2 joint 2 -0.1 -0.1 -0.9 -1.7	90.004 90.003 89.997 89.987 Slope (deg) 0.000 0.054
0.50L 1.500 -35.292 Jt. 2 0.000 -35.292 Jt. 2 0.000 -35.292 MAXIMUM +ve Bending Moment MESULTS FOR COMBINATION 5 Position (m) Shear Porce from End 1 (kN) Jt. 5.000 -191.963 0.75L 3.750 -98.213 0.50L 2.500 -4.463 0.25L 1.250 89.287	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m MEMBER 3 Axial Comp. Bend.Moment (kH chi.m) 0.000 17.878 0.000 82.050 0.000 82.050	0.0 0.1 0.1 0.0 from from	0.0 0.0 0.0 0.0 joint 2 joint 2 -0.1 -0.1 -0.9 -1.7	90.004 90.003 89.997 89.987 Slope (deg) 0.000 0.054
Maximum +ve Bending Moment Maximum -ve Bending Moment Maximum -ve Bending Moment RESULTS FOR COMBINATION 5 Position (m) Shear Force from End 1 (kN) Jt. 5 5.000 -191.963 0.75L 3.750 -98.213 0.50L 2.500 -4.463 0.25L 1.250 89.287 Jt. 2 0.000 183.037	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m MEMBER 3 Axial Comp. Bend.Moment (kN) (kN.m) 0.000 15.878 0.000 12.878 0.000 29.035 0.000 -141.168	0.0 0.1 0.0 from from dx (mm) 0.0 0.0 0.0	0.0 0.0 0.0 0.0 joint 2 joint 2 dy (mmm) -0.1 -0.9 -1.7 -1.0	90.004 90.003 89.997 89.987 Slope (deg) 0.000 0.054
0.50L 1.500 -35.292 Jt. 2 0.000 -35.292 Jt. 2 0.000 -35.292 MAXIMUM +ve Bending Moment RESULTS FOR COMBINATION 5 Position (m) Shear Force From End 1 (19.2) Jt. 5.00 -19.195 0.75L 2.500 -94.453 0.25L 1.250 89.287 Jt. 2 0.000 183.037	-91.519 17.646 -91.519 44.115 -91.519 70.584 70.584 kN.m at 0.000m -35.292 kN.m at 3.000m MEMBER 3 Axial Comp. Bend.Moment (kH chi.m) 0.000 17.878 0.000 82.050 0.000 82.050	0.0 0.1 0.0 from from dx (mm) 0.0 0.0 0.0	0.0 0.0 0.0 0.0 joint 2 joint 2 dy (mmm) -0.1 -0.9 -1.7 -1.0	90.004 90.003 89.997 89.987 Slope (deg) 0.000 0.054

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•	* EGYPTIAN ENGINEERS	* JOB : FRAME
*		
•	* FOR COMPUTERS (E E C)	
•	* 190 ET. SUDAN ST. MOHANDESSIN	*

* ANALYSIS RESULTS *SHEET: * ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 5 MEMBER 4
 Position (m)
 Shear Force from End 1
 Axial Comp.
 Bend Moment (KN.m)
 dx

 1.75
 3.000
 0.036
 165.981
 0.071
 0.071

 1.75
 2.250
 0.036
 165.981
 0.044
 0.0
 dy (mm) (deg)
-0.1 90.000
0.0 90.000 dy Slope 0.75L
 0.036
 165.981
 0.044
 0.0

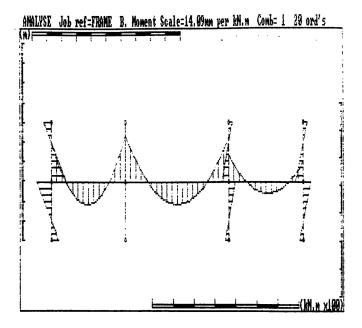
 0.036
 165.981
 0.018
 0.0

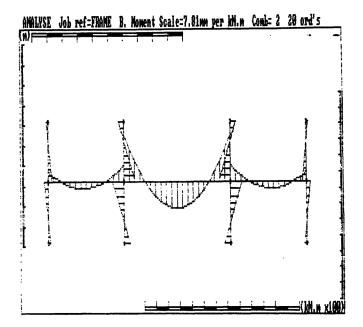
 0.036
 165.981
 -0.009
 0.0

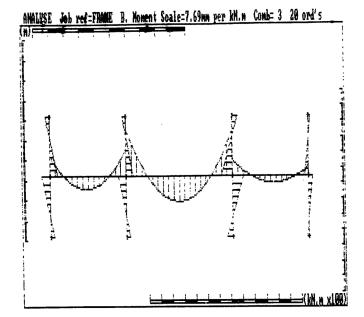
 0.036
 165.981
 -0.036
 0.0
 0.50L 1.500 0.25L 0.750 0.0 90.000 0.0 0.0 90.000 Jt. 4 0.000 0.0 90.000 Maximum +ve Bending Moment 0.071 kN.m at 3.000m from joint 4 Maximum -ve Bending Moment -0.036 kN.m at 0.000m from joint 4 RESULTS FOR COMBINATION 5 MEMBER 5 Jt. 6 0.75L 0.036 -165.981 0.036 -165.981 0.036 -165.981 0.036 -165.981 -0.018 0.0 0.0 90.000 -0.044 0.0 0.0 90.000 -0.071 0.0 -0.1 90.000 0.50L 0.25L Jt. 5 0.750 Maximum +ve Bending Moment 0.036 kN.m at 3.000m from joint 5
Maximum -ve Bending Moment -0.071 kN.m at 0.000m from joint 5 RESULTS FOR COMBINATION 5 MEMBER 6 Position (m) Shear Force Axial Comp. Bend.Homent from End 1 (kN) (kN) (kN.m) (kN.m) -140.000 0.000 -163.339 dx dy Siege (mm) (mm) (deg) 0.0 -0.1 0.000 0.0 -1.7 0.073 from End 1 Jt. 8 7.000 0.000 -163.339 0.0 -0.1 0.000 20.411 0.0 -1.7 0.000 81.661 0.0 -3.0 0.000 20.411 0.0 -1.7 0.000 -163.339 0.0 -0.1 0.75L 5.250 -70.000 0.50L 3.500 0.000 0.25L 1.750 70.000 Jt. 5 0.000 140.000 -3.0 0.000 -0.073 0.000 Maximum +ve Bending Moment 81.661 kN.m at 3.500m from joint 5 Maximum -ve Bending Moment -163.339 kN.m at 0.000m from joint 5 RESULTS FOR COMBINATION 5 MEMBER 7
 Position (m)
 Shear Force from End 1
 Axial Comp. Bend.Homent (kN)
 dx (kN, m)
 dx (mm)
 dy (mm)
 degrad (mm)
 de Jt. 8 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 7 0.000

Maximum +ve Bending Moment 0.036 kN.m at 0.000m from joint 7
Maximum -ve Bending Moment -0.071 kN.m at 3.000m from joint 7

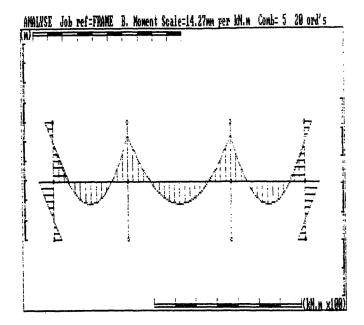
***********	********	* EGYPTIAN E			· JOB : FR	
*		-*			*	
*		* FOR COMPU	TERS (E E C)		* DATE: 19	92
:		* 190 EL SUD	AN ST., MOHANDESS	T S	*SBEET:	25
*						
* ANALYSE (C)Co						
RESULTS FOR COM			*************			
Position (m)	Shear Force	Axial Comp.	Bend Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 9 3.000 0.75L 2.250	-0.036	-165.981	-0.036	0.0	0.0	90.000
0.75L 2.250						90.000
0.50L 1.500	-0.036	-165.981	0.018	0.0	0.0	90.000
0.25L 0.750	-0.036	-165.981	0.044	0.0	0.0	90.000
0.50L 1.500 0.25L 0.750 Jt. 8 0.000	-0.036	-165.981	0.071	0.0	-0.1	90.000
Maximum +ve Bend Maximum -ve Bend	ding Moment	0.071 kN	.m at 0.000m	from	joint 8	
WONTHIRM -AS DELL	aing moment	-0.036 KM	.m ac 3.000m		JOINC 0	
RESULTS FOR COM						
Position (m)	Shear Force	Axial Comp.	Bend. Moment	dx	dy	Slope
from End 1			(kN.m)	(mm)	(mm)	(deg)
Jt. 11 5.000				0.0	0.0	
0.75L 3.750	-89.287	0.000	29.035	0.0	-1.0	0.053
0.50L 2.500			82.050	0.0	-1.7	
0.25L 1.250	98.213			0.0		-0.054
Jt. 8 0.000	101 063	. 0.000	-163.481	0.0		0.000
						0.000
Maximum +ve Ben Maximum -ve Ben	ding Moment	82.183 kN	.m at 2.560m	from	joint 8	
Maximum -ve Ben	ding Moment	-163.481 kN	.m at 0.000m	from	joint 8	
RESULTS FOR COM	BINATION 5					
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m) 70.584 44.115	(mm)	(mm)	(deg)
Jt. 11 3.000	35.292	91.519	70.584	`0.0	0.0	90.013
Jt. 11 3.000 0.75L 2.250	35.292	91.519	44.115	0.1	0.0	90.003
0.50% 1.500	35.292		17.646	0.1	0.0	89.997
0.25L 0.750	35.292	91.519	-8.823	0.0		89.996
Jt. 10 0.000	35.292	91.519	-35.292	0.0	0.0	90.000
Maximum +ve Ben	ding Moment	70.584 kN	.m at 3.000m	from	joint 10	
Maximum -ve Ben	ding Moment	-35.292 kN	.m at 0.000m	from	joint 10	
RESULTS FOR COM	BINATION 5					
Position (m)	Shear Force	Axial Comp.	Bend. Moment			Slope
from End 1	(kN)	(kÑ)	(kN.m) 35.292	(mm)	(mm.)	(deg)
Jt. 12 3.000	35.292	-91.519	35.292	0.0	0.0	90.000
0.75L 2.250			8.823	0.0	0.0	89.996
0.50L 1.500			-17.646	-0.1		89.997
0.25L 0.750	35.292	-91.519		-0.1		90.003
Jt. 11 0.000	35.292	-91.519	-70.584	0.0		90.013
Maximum +ve Ben	ding Moment	35.292 kM	l.m at 3.000m	from	joint 11	



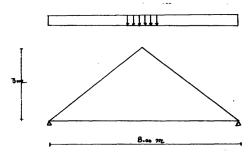




AMALYSE Job ref=FRAME B. Moment Scale=7.74mm per kM.m. Comb= 4 20 ord's



مثال : كما بالرسم أطار هيكلى (Frame) وعليه الأحمال المضحة DL = 4 t/m`, LL = 3 t/m`



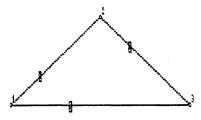
- ندخل احداثيات نقاط المنشأ وكذلك أعضائه وحالة الوصلات كالتالي:

Joint	X(m)	Y(m)
1	0	0
2	4	3
3	8	0

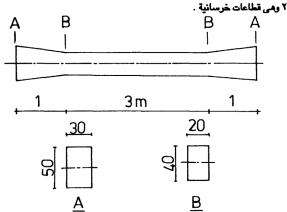
Member	Jt.1	Jnt.Con	Jt.2	Jnt.Con		
1	1	F	2	F		
2	2	F	3	F		
3	1	р	3	p		

- تم توصيف العضورةم (٣) على أنه (Steel tie)

- نضغط [D] لشاهدة رسم النشأ كالآتي :

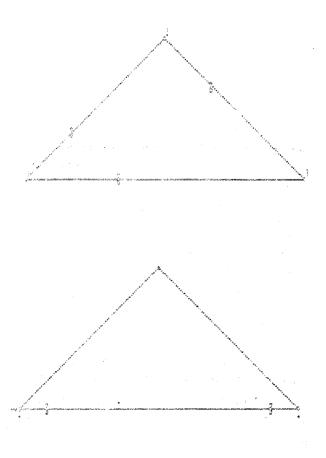


- ندخل خصائص قطاعات واعضاء المنشأ (Properties) كما بالرسم للأعضاء ١ ،



 $\frac{D}{10}$ أما العضو الثالث فهو شداد على هيئة سيخ حديدى مساحته = ١٩,٦٥ سم

ويتم ادخال تلك البيانات باستخدام العناصر [Elements] وذلك للاعضاء ٢، ٢ مع تعريفها على أنها غير منتظمة المقطع (Non Prismatic) أما العضو الثالث فيمكن ادخال المساحة وعزم القصور مباشرة في جدول القطاعات (Table of sections) ويراعى ادخال قيمة معامل ينج الخرسانة للاعضاء ١، ٢ والحديد العضورة ٣.



Tab	le of Section	ı	Mer	nber	Section P	ropertie	s
Sect	ion Area	Inertia	No. of	Mem	Member	No. Se	c. Modulus E
No	(cm2)	(cm4)	Element	s No.	Length N/	P Seg N	o. (N/mm2)
1	1500.000	312500.00	1	1	5.000 n		1
2	800.000	106666.67	1				
3	0.000						
			:	Segm	ent (s) of	Membe	r 1
!			:	Seg.	Segment	Sectio	n No.
]	No.	Length	End1	End2
				1	1.000	1	2
			:	2	3.000	2	2
				3	1.000	2	1

Tal	Table of Section Member Section Properties						
Sec	tion Area	Inertia	No. of	Mem	Member	No. Sec.	Modulus E
No	(cm2)	(cm4)	Elements	No.	Length N/P	Seg No.	(N/mm2)
1	1500.000	312500.00	1	1	5.000 N	3	21000.000
2	800.000	106666.67	1	2	5.000 N	3	21000.000
3	19.650	36.66	0	3	8.000 p	13	210000.000
4							

ندخل بيانات الركائز Supports كما بالجدول:

Joint	Support	Support X Restraint Y Restrain		A Restraint	
1	Hinge	Full	Full	Zero	
3	Roller	Zero	Full	Zero	

- ندخل اسماء الأحمال (Load Case names)

- 1- Dead Load
- 2 Live Load

- ند خل قيم الاحمال الموزعة بانتظام على الاعضاء ١ ، ٢ كالاتي :

Dead Load UV 40 KN/m

Live Load UV 30 KN/m'

- ندخل حالات التحميل وهي حالة واحدة الحمل الميت والحي على الاعضاء ١، ٢.

- نضغط [٩] ثم [٧] للبدء في الحل فتظهر خطرات الحل تباعا على الشاشة .

- تظهر بيانات ونتائج المنشأ كلها كالاتي :

Joint	positions	
Jt.	X coord	Y coord
No.	(m)	(m)
1	0.000<	0.000
2	4.000	3.000
3	8.000	0.000
4		

Input mode

Fl F2 Help Calc	F6 Top	F7 Up	F8 Down	F9 Commnd	F10 ESC Bottom Esca		NUMLOCK is ON
	Coord Y1 Coor		Jnt X	2 Coord	Y2 Coord	Length (m)	Slop∈ (deg)
No. no. con	(m) (m) 0.000 0.00			4.000	3.000	5.000	36.870
2 2 7	4.000 3.00			8.000	0.000	5.000	-36.87C
2 2 F	0.000 0.00			8.000	0.000	8.000	0.000

Input mode

Fl	F2	F6	F7	F8	F9	F10	ESC	NUMLOCK
Help	Calc	Top	Up I	Down (Commnd	Bottom	Escape	is ON
Table of Section No. 1 2	of Sections Area (cm2) 1500.000 800.000	Inertia (cm4) 312500.00 106666.67	No. of Elements 1 1	Mem	Memb Leng	ber	roperties No. Sec. Seg No. 3	Modulus E (N/mm2) 21000.000 21000.000

3 4	19.650	30.66	0	3	8.000 P	1	3	210000.000

Elements of Section no. 1
Elem Y-dim B-dim D-dim
No. (mm) (mm) (mm) (mm)
1 0.000 300.000 500.000

Input mode

F1	F2	_F6	F7	F8	F9 .	F10	ES		NUMLOCK
Help	Calc	Top	Ūρ	Down (Command	Bottom	ESC	ape	is ON
Table	of Sections			Mem	ber Sec	tion P	cope	rties	
Section	n Area	Inertia	No. of	Mem	Memb	er	No.	Sec.	Modulus E
No.	(cm2)	(cm4)	Element	s No.	Leng	jth N/P	Seg	No.	(N/mm2)
1	1500.000	312500.00	1	1	5.	000 N	3		21000.000
2	800.000	106666.67	1	2	5.	.000 N	3		21000.000
3	19.650	30.66	0	3	8.	.000 P	1	3	210000.000
4									

Elements of Section no. 2
Elem Y-dim B-dim D-dim
No. (mm) (mm) (mm)
1 0.000< 200.000 400.000

Input mode

F1 F2 Help Calc	F6 Top		F8 own C	P9 Command Bo	F10 ttom	Esca Esca		NUMLOCK is on
Table of Section			Memb	er Secti	on P	ropei	rties	
Section Area	Inertia	No. of	Kem	Member		No.	Sec.	Modulus E
No. (cm2)	(cm4)	Elements	No.	Length	N/P	Sea	No.	(N/mm2)
1 . 1500.000	312500.00	1	1	5.00		- 3		21000.000
2 800.000	106666.67	ī	2	5.00	O N	3		21000.000
3 19.650	30.66	0	3	8.00	0 P	1	3	210000.000
4				• • • • • • • • • • • • • • • • • • • •		-	-	

Segment(s) of Member 1 Seg. Segment Section No.

No.	Length	End1	End2
1	1.000	1	2
2	3.000	2	2
3	1.000	2	1

Input mode

F1	F2	F6	F7	F8	F9	F10	E	SC	NUMLOCK
Help	Calc	Top	Up D	own	Commnd	Bottom	Esc	ape	is ON
Table	of Sections			Мел	ber Se	ction P	rope	rties	
Sectio	n Area	Inertia	No. of	Her	Mem	ber	No.	Sec.	Modulus E
No.	(cm2)	(cm4)	Elements	No.	Len	gth N/P	Seg	No.	(N/mm2)
1	1500.000	312500.00	1	1	. 5	.000 N	3		21000.000
2	800.000	106666.67	1	2	5	.000 N	3		21000.000
3	19.650	30.66	0	3	8	.000 P	1	3	210000.000

Input mode

F1	F2	F6	F7	F8	F9	F10	ESC	NUMLOCK
Help	Calc	Top	Up	Down	Commad	Bottom	Escape	is ON
Support								

| Supports | No. Jnt | Restraint | Y Restraint | A Restraint | No. Jnt | Restraint | No. Jnt | Restraint | A Restraint | No. Jnt | Restraint | A Restraint |

Input mode

Pl Help (F6 F7		F9 Commnd I		ESC scape Om slope = 30	NUMLOCK is ON
Mem No.	of Ld. L	oad case	Load	Start	Loaded	(kN, kN.m o	
2	2 1 2 2 2 2		Load UV load UV			40.000 30.000	
	Input	mode					
Fl Help	F2 Calc	F6 F7 Top Up	F8 Down	F9 Commnd	F10 Bottom	ESC Escape	NUMLOCK is ON
MEMBER LO	ADS Loads	moments on	Member 2	(lengt	h = 5.0	00m slope = -	36.870deg

Load Start Loaded (kN, kN.m or kN/m)
name Type Pos(m) Len(m) Start val. End val.
Dead Load UV
live load UV Ld. Load case No. Number & name Mem No.of No. Loads 1 2 3 2 3 2 2 0 1 2

Input mode

F1 F2 F6 F7 F8 F9 F10 ESC Down Command Bottom Escape NUMLOCK Help Calc Top is ON Up

Safety Factors for Combination 1 Load Case Safety Number and name factor

Input mode

F1 Help	F2 Calc	ř6 Top	F7 Up	F8 Down	P9 Commnd	F10 Bottom	ESC Escape		NUMLOCK is ON
				PTIAN EN					TFRAME
:		•	FOR 190	COMPUTE EL_SUDA	RS (E	E C) DHANDESS	in .	DATE: SHEET:	
FRAME GI		pyright Comput	er a	nd Desig	n Servi	ces Limi	ited 19	85 ======	*#5====

No. of Joints = 3

Mem:Jt.:C: No.:no.: :	X coord: Y	coord :Jt.:C: (m) :no.: :	X Coord : Y (m) :	Coord :	Length: Slope (m): (deg)
1: 1:F: 2: 2:F: 3: 1:P:	0.000 z	0.000 : 2:P: 3.000 : 3:F: 0.000 : 3:P:	4.000 : 8.000 :	3.000 : 0.000 : 0.000 :	5.000 : 36.87

TABLE OF SECTIONS

Section Number	:	(cm2)	(cm4):	No:	D (mun)	: B (mm)	(if specified) : Y (mm)
1	:	1500.00	312500.0:	1:	500.00	: 300.00	0.00
2	:	800.00	106666.7:	1:	400.00	200.00	0.00
3	:	19.65	30.7:				•

SUMMARY OF MEMBER PROPERTIES

Member 1 NON PRISMATIC : Modulus E = 21000.0 N/mm2

```
Member 2 NON PRISMATIC : Modulus E = 21000.0 N/mm2
Segment 1 Length = 1.000 m: End 1 Section No. = 1 : End 2 Section No. = 2
                3.000 m: '' ''
                                     2: "
                                 ..
                                      2:
                1.000 m:
Member 3 PRISMATIC : Section Number 3 : Modulus E = 210000.0 N/mm2
 SUPPORTS
No. of Supports = 2
 Joint : X Restraint : Y Restraint : Angular Restraint
 Number: (kN/mm): (kN/mm): (kN.m/radian)
                    ------:-
   1 : FULL : FULL
3 : ZERO : FULL
                                ZERO
                                 ZERO
                           .
                      * EGYPTIAN ENGINEERS
                                               * JOB : TFRAME
                      * FOR COMPUTERS ( E E C )
                                               * DATE: 1992
                       * 190 EL_SUDAN ST., MOHANDESSIN
                                                *-----
                           INPUT DATA
                                               *SHEET:

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APPLIED LOADS AND MOMENTS
MEMBERS 1 - 2
LOAD CASE :LOAD: POSITION : LOAD / MOMENT
No : Name
               :Type: Start: Length: Start Value: End Value
                              ------:
 1:
       Dead Load: UV :
                                        40.000 kN/m:
                            .
        live load: UV :
                                        30.000 kN/m:
 2:
                                    :
COMBINATIONS
               : TABULATED VALUES OF PARTIAL SAFETY FACTORS
LOAD CASE : Combination Number
No : Name
       Dead Load:1.000
live load:1.000
```

2:

•	* EGYPTIAN ENGINEERS	* JOB : TFRAME
*	-+	+
•	* FOR COMPUTERS (E E C)	* DATE: 1992
•	* 190 EL SUDAN ST., MOHANDESSIN	*
•	* ANALYSIS RESULTS	*SHEET: 7
*		
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RESULTS FOR COMBINATION 1

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	-0.0055	0.000	280.000	0.000
2	2.29	-4.27	0.0000			
3	4.59	0.00	0.0055	0.000	280.000	0.000

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -560.000 0.000	Mo (kN.m) -2240.000 0.000
Reactions	0.000	-560.000	-2240.000
Summation		560.000	2240.000

Summation 0.000 0.000 0.000

Maxima for Hember 1

Load Shear (kN) Maximum Axial (kN) <------ Bending Moment (kN.m) ------>
Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m)
1 -141.920 157.227 0.000 75.190 1.832 -149.602 5.000

Maxima for Member 2

Load Shear (KN) Maximum Axial (kN) <----- Bending Moment (KN.m) ------ Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 141.920 357.227 0.000 75.190 3.168 -149.602 0.000

Maxima for Member 3

Load Shear (kN) Maximum Axial (kN) <------ Bending Moment (kN.m) -------Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (n) 1 0.000 0.000 236.534 0.000 0.000 0.000 0.000

RESULTS FOR COMBINATION 1 MEMBER 1

Positi	on (m)	Shear Force	Axial Comp.	Bend. Moment	dx	dy	Slope
from	End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 2	5.000	-141.920	189.227	-149.602	2.3	-4.3	36.870
0.75L	3.750	-85.920	231.227	-7.202	3.4	-5.5	36.997
0.50L	2.500	-29.920	273.227	65.199	4.7	-7.0	36.886
0.25L	1.250	26.080	315.227	67.599	3.6	-5.1	36.655
Jt. 1	0.000	82.080	357.227	0.000	0.0	0.0	36.555

 Maximum +ve Bending Moment
 75.190 kN.m at
 1.832m from joint 1

 Maximum -ve Bending Moment
 -149.602 kN.m at
 5.000m from joint 1

•	* EGYPTIAN ENGINEERS	* JOB : TFRAME
*	·	*
	* FOR COMPUTERS (E E C)	* DATE: 1992
•	* 190 EL SUDAN ST., MOHANDESSIN	*
•	* ANALYSIS RESULTS	*SHEET: 8
*		

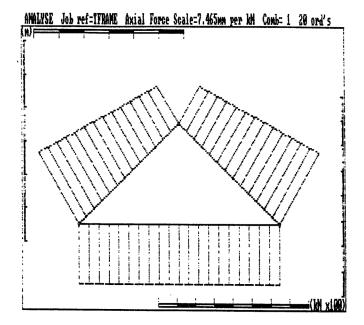
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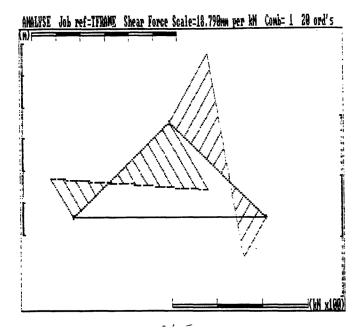
RESULTS FOR COMBINATION 1 MEMBER 2

Posit.	ion (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
fro	n End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 3	5.000	-82.080	357.227	0.000	4.6	0.0	-36.555
0.75L	3.750	-26.080	315.227	67.599	1.0	-5.1	-36.655
0.50L	2.500	29.920	273.227	65.199	-0.1	-7.0	-36.886
0.25L	1.250	85.920	231.227	-7.202	1.2	-5.5	-36.997
Jt. 2	0.000	141.920	189.227	-149.602	2.3	-4.3	-36.870

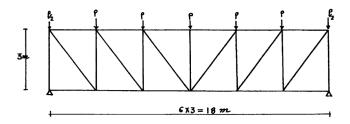
Maximum +ve Bending Moment 75.190 kN.m at 3.168m from joint 2

AMALYSE Job ref=TFRAME B. Moment Scale=17.83mm per kM.m Comb= 1 20 ord's





مثال: كما بالرسم جمالين حديدي (Truss) وعليه الأحمال المضحة بالرسم:



P(D.L) = 0.72 tP(L.L) = 0.9 t

70 X 70 X 7 mm

60 X 60 X 6 mm

60 X 60 X 60 mm

- قطاع الجمالين كما بالرسم:

- تظهر بيانات ونتائج المنشأ كالاتي :

医含义主张 医异类 化苯化氯苯甲基甲基 法国际 美国 医克耳氏征 对某人 医克里耳氏 经工程 医克里耳氏 医克里耳氏 计记录 医克里耳氏 化二甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲甲															
•	*											*	JOB	: '	TRUSS
*	*											٠.			
•	•											٠	DATE	:	
•	*											٠.			
•	*	I	N	P	U	7	r	D	A	T	A	*5	HEET	•	16
*															

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FRAME GEOMETRY

No. of Joints = 14

MEMBERS

									End 2 Det						
Mem:Jt.					Y				X Coord						
No.:no.			(m)					10.: :	(m)		(m)		(m)		
	:P:		000			3.000		4 : P:			3.000		3.000		0.00
	:P:		000			3.000					3.000		3.000		0.00
3: 6	:P:	6.	000	:		3.000	:	8:P:	9.000	:	3.000		3.000	:	C.00
	:P:	9.	000	:		3.000	ŧ	10:P:	12.000	:	3.000	:	3.000	:	0.00
5: 10			000					12:P:	15.000	:	3.000		3.000		0.00
6: 12	:P:	15.	000	:		3.000	:	14:P:	18.000	:	3.000	:	3.000	:	0.00
7: 1	:F:	0.	000	:		0.000	:	3:P:	3.000	:	0.000	:	3.000	:	0.00
8: 3	:P:	3.	000	:		0.000	:	5:F:	6.000	:	0.000	:	3.000	:	0.00
9: 5	:P:	6.	000	:		0.000	:	7:F:	9.000	:	0.000	:	3.000	:	0.00
10: 7	ıP:	9.	000	1		0.000	:	9:F:	12.000	:	0.000	:	3.000	:	0.00
11: 9	ıP:	12.	000	:		0.000	:	11:F:	15.000	:	0.000	•	3.000	:	0.00
12: 11	:P:	15.	000			0.000	:	13:P:	18.000	:	0.000	:	3.000	:	0.00
13: 1	:P:	0.	000	:		0.000	:	2:F:	0.000	:	3.000	:	3.000	:	90.00
14: 3	:P:	3.	000	:		0.000	:	4:F:	3.000	:	3.000	:	3.000	:	90.00
15: 5	:P:	6.	000	=		0.000	:	6:P:	6.000	:	3.000	:	3.000	:	90.00
16: 7	:P:	9.	000	:		0.000	:	8:F:	9.000	:	3.000	:	3.000	:	90.00
17: 9	:P:	12.	000	:		0.000	:	10:F:	12.000	:	3.000	:	3.000	:	90.00
18: 11	:P:	15.	000	:		0.000	:	12:F:	15.000	:	3.000	:	3.000	ı	90.00
19: 13	:P:	18.	000	:		0.000	:	14:F:	18.000	:	3.000	:	3.000	:	90.00
20: 2	:P:	0.	000	:		3.000	:	3:F:	3.000	:	0.000	:	4.243	:	-45.00
21: 4	:P:	3.	000	:		3.000	:	5:P:	6.000	:	0.000		4.243		-45.00
22: 6	:P:	6.	000	:		3.000	:	7:P:	9.000		0.000				-45.00
23: 7	:P:	9.	000	:		0.000		10:P:	12.000		3.000		4.243		45.00
	:P:	12.	000	:				12:P:			3.000		4.243		45.00
25: 11	:P:	15.	000	:				14:P:	18.000		3.000		4.243		
							-			-		-		-	

TABLE OF SECTIONS

ection : umber :	Area: (cm2):	Inertia: (cm4):	Rectangular No: D (mm)	Elements (B (mm):	if sp	pecifie (mm)	d)	
1:	18.80:	84.8:	:		•			
2:	13.82:	45.6:	:					
		e===ue==a=	:					
			ion Number	1 : Modulu	a E =	21000	0.0 N/mm2	
			tion Number					
			CION NUMBER					====
*******	**********	#	*********					
			• •				JOB : TRUS	s
			*					
			:				DATE:	
ANALYS	E (C)Copyr	ight Compu	* INP	gn Service	s Lim	ited 1	*SHEET: 1	7
ANALYS UPPORTS No. of Su Joint :	E (C)Copyr pports =	right Compu	straint : Ang	gn Service	s Lim	ited 1	*SHEET: 1	7
ANALYS UPPORTS lo. of Su Joint : Number :	E (C)Copyr apports = X Restrai	2 int:YRes	straint : Ang	gn Service	s Lim	ited 1	*SHEET: 1	7
O ANALYS SUPPORTS No. of Su Joint : Number :	E (C)Copyr apports = X Restrai	2 int:YRes	straint : Ang	gn Service	s Lim	ited 1	*SHEET: 1	7
Joint : Number :	pports = X Restrai (kN/mm FULL	2 Int:YRes	straint : Ang	gn Service gular Restr kW.m/radi ZERO	aint	ited 1	985	.7
Joint : Number :	E (C)Copyr apports = X Restrai (kN/mm	2 Int:YRes	straint : Ang	gn Service gular Restr kW.m/radi ZERO	aint	ited 1	985	.7
Joint : Number : 1 : 13 :	pports = X Restrai (kN/mm FULL	2 Int:YRes	straint : Ang	gn Service gular Restr kW.m/radi ZERO	aint	ited 1	985	.7
JOINT 2	E (C)Copyr	2 Int: Y Res	ter and Desi	gn Service gular Restr kW.m/radi ZERO	aint	ited 1	985	.7
JOINT 2 JOINT 2 JOINT 2 JOINT 2 JOINT 2	E (C)Copyr pports = X Restrai (kN/mm FULL OADS AND F	2 Ant: Y Res : Pt : Pt : Pt : CAD: LOAD: LO	straint : Ang (N/mm) : (JLL : JLL :	gn Service gular Restr kW.m/radi ZERO	aint	ited 1	985	.7
Joint : Number : 1 : 13 : APPLIED I	E (C)Copyr apports = X Restrai (kN/mm FULL FULL CADS AND P	ight Computer of the computer	straint : Ang (N/mm) : (ILL : ILL : ILL : DAD / MOMENT Value	gn Service	aint	ited 1	985	.7
Joint : Number : 1 : 13 : APPLIED I	E (C)Copyr apports = X Restrai (kN/mm FULL FULL CADS AND P	ight Computer of the computer	straint : Ang (N/mm) : (ILL : ILL : ILL : DAD / MOMENT Value	gn Service	aint	ited 1	985	.7
ANALYS UPPORTS IO. of Su Joint : Number : 1 : 13 : 13 : 10 : 10 : 10 : 11 : 2 : 11 : 2 : 11 : 2 : 12 : 13 : 13 : 13 : 13 : 14 : 15 : 16 : 17 : 18 : 18 : 18 : 18 : 18 : 18 : 18 : 18	E (C)Copyr apports = X Restrai (kN/mm FULL FULL C A S E Dead Loo	ight Computer () () () () () () () () () (straint : Ang (N/mm) : (JLL : JLL : Value 3.600 km	gn Service	aint an)	ited 1	-SHEET: 1	
ANALYS SUPPORTS NO. of Su Joint: Number: 1: 13: APPLIED L JOINT 2 L O A D No : Name 1: 2:	E (C)Copyr apports = X Restrai (kN/mm FULL FULL C A S E Dead Loo	ight Computer () () () () () () () () () (straint : Ang (N/mm) : (ILL : ILL : ILL : DAD / MOMENT Value	gn Service	aint an)	ited 1	-SHEET: 1	
ANALYS SUPPORTS NO. of Su Joint: Number: 1: 13: APPLIED L JOINT 2 L O A D No : Name 2: JOINT 4	E (C)Copyx Apports = I Restrai (kN/mm FULL FULL CASE CASE Dead Loo LIVE LON	2 Int: Y Res : Pt : Pt : Pt : COMD: Lt : Type: :LOAD: Lt :Type: d: PV :	straint : Ang (N/mm) : (JLL : JLL : JLL : JLL : JLL : JAD / MOMENT Value 3.600 kM	gn Service	aint an)	ited 1	-SHEET: 1	
ANALYS SUPPORTS No. of Su Joint : Number : 1 1 3 : PPLIED I JOINT 2 LO A D So : Name 1: 2: JOINT 4 LO A D	PPORTS = I Restrai (kM/mm FULL FULL C A S E Dead Lou LIVE LOU C A S E	2 Int: Y Res : Y Res : Y Res : PT : PT : PT : LOAD: LA : Type: dd: PV : DD: PV :	ALC AND	gn Service	aint an)	ited 1	-SHEET: 1	
JOINT 2 LOAD TO LOCATION TO SUPPORTS IO. of Su Joint : Number : 1 : 13 : 13 : 13 : 13 : 13 : 13 : 13	IE (C)Copyrus INPORTS - I X Restrai I (kW/mm FULL FULL C A S E Dead Los LIVE LOS C A S E	2 Int : Y Res : Y Res :	straint : Ang (N/mm) : (ILL : ILL :	gn Service	aint an)	ited 1	-SHEET: 1	
ANALYS SUPPORTS to. of Su Joint r Number : 1 1 1 13 : APPLIED I JOINT 2 LO A D So : Name L: 2: JOINT 4 LO A D So : Name	E (C)Copyr	2 Int: Y Res i) (h FY IV IV IV IV IV IV IV IV IV I	ALC AND	gn Service	aint an)	ited 1	-SHEET: 1	

1: JOINT 6

OAD lo:Name		:1	Type:	Val	ue							
1: 2:	Dead LIVE	Load: LOAD:	PV:	7	.200	kN kN						
OINT 8												
OAD			Type:	Val	ue							
1: 2:	Dead LIVE	Load:	PV :	7	.200	kN kN						
OINT 10												
OAD To: Name			Type:	Va.	ue							
1: 2:	Dead LIVE	Load:	PV :		.200	kN kN						
*******	441422									* JOB	: TR	USS
*******	44E4EE		9==7:							* JOB	: TR	USS
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*********** *				:						• JOB • DATE	TR	USS
ANALYS	E (C)C		ht Co	**************************************	I	N P	U T	D A T	A nited	* JOB * DATE * SHEET	TR	18
* ANALYS APPLIED L JOINT 12 L O A D No : Name	E (C)C	opyrig	int Co	emputer Continu	and land	N P Desig	u T	D A T	A nited	* JOB * DATE * SHEET	TR	18
ANALYS APPLIED L JOINT 12 L O A D No : Name 1: 2:	E (C)CO	DDYTIG	LOAD:	mputer Continu	and i	N P Desig	u T	D A T	A nited	* JOB * DATE * SHEET	TR	USS 18
ANALYS APPLIED L JOINT 12 L O A D No : Name 1: 2:	E (C)C OADS A	DDYTIG	LOAD:	mputer Continu	and i	N P Desig	u T	D A T	A nited	* JOB * DATE * SHEET	TR	USS 18
APPLIED L JOINT 12 L O A D No : Name 2: JOINT 14 L O A D	C A S	DDYTIG	LOAD:	mputer Continu LOAD	I and led lue 7.200	N P Desig	U T	D A T	A nited	* JOB * DATE * SHEET	TR	18
* ANALYS APPLIED L JOINT 12 L O A D No : Name 1: 2: JOINT 14 L O A D No : Name 1: 2: 2:	C A S Dead LIVE C A S	DDYTIG	LOAD: Type: LOAD: Type: PV: PV: PV: PV: PV: PV:	mputer Continu LOAD Va	I and leed / MON lue / .000 / MON lue	N P Oesig ENT kn kn kn	U T	DATA	aited	• JOB • DATE • SHEET 1985	: TR	18
ANALYS APPLIED L JOINT 12 L O A D L O A D L O A D NO : Name	C A S Dead LIVE C A S	DDYTIG	LOAD: Type: LOAD: Type: PV: PV: PV: PV: PV: PV:	mputer Continu LOAD Va	I and leed / MON lue / .000 / MON lue	N P Oesig ENT kn kn kn	U T	DATA	aited	• JOB • DATE • SHEET 1985	: TR	USS 18

1: Dead Load:1.000 2: LIVE LOAD:1.000

* JOB : TRUSS * DATE: * ANALYSIS RESULTS *SHEET: 19 ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 Joint Displacements and Reactions dy (mm) Joint No. dx(mm) 0(rad) Px (kN) Py (kN) 48.600 M (kN.m) 0.00 0.00 -0.0011 35.100 0.000 1 2 1.35 -0.50 -0.0005 --0.36 -3.40 -0.0008 1.05 -3.82 -0.0005 5 -0.31 -5.89 -0.0008 0.55 -6.14 -0.0003 0.00 -6.93 -0.0003 7 0.00 -7.10 0.0000 ĕ 0.31 -5.89 0.0003 10 -0.55 -6.14 0.0003 0.0008 11 0.36 -3.40 -1.05 -3.82 0.0005 12 0.000 0.00 0.00 0.0011 -35.100 48.600 13

14	-1.35	-0.50	0.0005		
Summation of	Forces a	ind Moment	8 .		
Member Loads Joint Loads		(kN) 0.000 0.000	Py (kN) 0.000 -97.200	Mo (kN.m) 0.000 -874.800	
Reactions Summation		0.000	-97.200 97.200	-874.800 874.800	
Summation		0.000	0.000	0.000	
Maxima for Me	ember 1				

Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 40.500 0.000 0.000 0.000 0.000 0.000 ______

Maxima for Member 2

Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) ------ Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 0.000 64.800 0.000 0.000 0.000 0.000 0.000

Maxima for Member 3

Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 72.900 0.000 0.000 0.000 0.000 0.000

•				:						• JOB : 1	
:				•						* DATE:	
:					NAL	sı	S R	ESUI	. т s	*SHEET:	
- AN	ALYSE	(C)Cop	right Compu	ter	and De	ign S	ervic	es Limi	ted	1985	
Maxim	a for	tember	4			****					******
Load	Shear	(kN)	Maximum A	xial	(kN)	<	в	ending	Mome	nt (kN.m)	>
COMD.	(Abs.	0.000	(Compression 72.900	(T	0.000	Max.	+ve 0.000	Pos. (m) 1	Maxve 0.000	Pos. (m) 0.000
Maxim	a for	dember	5								
Load	Shear	(kN)	Maximum A	xial	(kN)	<	в	ending	Mome	nt (kN.m)	>
Comb.	(Abs.	Max.)	(Compression 64.800) (T	ension:	Max.	+ve 0.000	Pos. (m) 1	Maxve 0.000	Pos. (m)

Maxima for Member 6

oad								
	Shear	(KM)	Maximum A.	Kial (kN)	Be	ending Mon	ent (kN.m)	>
comb.	(ADS.	Max.)(Compression) (Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1		0.000	40.500	0.000	0.000	0.000	0.000	0.000
		Member						
Load	Shear	(kN)	Maximum A	xial (kN)	< Be	ending Mon	ent (kN.m)	>
Comb.	(Abs.	Max. 16	Compression	(Tension)	Max . +ve	Pos. (m)	May _ve	Pos (m)
1	•	0.000	Compression 35.100	0.000	0.000	3.000	0.000	0.000
		Member						
	6 2							
LOAG	Snear	(KN)	Maximum A	XIAI (KN)	< В	ending Mor	ment (kN.m)	>
COMD.	(Abs.	Max.)(Compression) (Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
		0.000	0.000	5.400	0.000	3.000	0.300	0.000
laxima	for	Member	9					
oad	Shear	(kN)	Maximum A	rial (kN)	< R	ending Mor	ment (kN.m)	>
Comb -	(Abs.	Max. 1	Compression	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (=)
1	,	0.000	0.000	29.700	0.000	0.000	0.000	0 000
laxima	for	Member	10					
oad	Shear	(kN)	Maximum A	xial (kN)	< B	ending Mor	ment (kN.m)	>
omb.	(Abs.	Max.)	Compression	(Tension)	Max. tve	Pos. (m)	Maxve	Pos. (m)
1		0.000	0.000	29.700	0.000	0 000	0 000	3 000
lax1ma	i for	Member	11					
oad	Shear	(kN)	Maximum A	xial (kN)	< Be	ending Mor	ment (kN.m)	>
comb.	(Abs.	Max.)(Compression) (Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1		0.000	0.000	5.400	0.000	0.000	0.000	0.000
laxima	for	Member	12					
~-d	Chas-	(l-N7)	M					
wau	onear	(KN)	Maximum A	KIMI (KN)	С В	ending Mor	ment (kN.m)	>
.cmb.	(ADS.	max.)(combression) (Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1		0.000	35.100	0.000	0.000	0.000	0.000	3.000
1		0.000	35.100	0.000	0.000	0.000	0.000	3.000
1		0.000	35.100	0.000	0.000	0.000	0.000	3.000
		0.000	35.100	0.000	0.000	0.000	0.000	3.000
		0.000	35.100	0.000	0.000	0.000	0.000 * JOB :	3.000
		0.000	35.100	0.000	0.000	0.000	* JOB : *	3.000
			35.100	0.000	0.000	0.000	* JOB : * DATE:	3.000 TRUSS
1 	ALYSE	0.000	35.100	0.000	S I S R I	0.000	* JOB : * DATE: * S *SHEET:	TRUSS
ANA	ALYSE	0.000	75.100	0.000	S I S R I	0.000	* JOB : * DATE: * S *SHEET:	TRUSS
l 	LLYSE	(C)Copy	35.100	• ANALY	SIS Riign Service	0.000	0.000 * JOB : * * DATE: * * S*SHEET: 11985	3.000 TRUSS
ANA	LYSE a for I	(C)Copy	77.ight Compu	• A N A L Y	SIS R	0.000	* JOB : * DATE: * DATE: * S *SHEET:	3.000 TRUSS
ANA	LYSE for I	(C)Copy	35.100	o.000	S I S R I	ESULT	* JOB : * DATE: * S * SHEET: 1 1985	3.000 TRUSS 21

Maxima for Member 14 Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 40.500 0.000 0.000 3.000 0.000 0.000 _____ Maxima for Member 15 Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 24.300 0.000 0.000 3.000 0.000 0.000 ------_____ Maxima for Member 16 Load Shear (kN) Maximum Axial (kN) <------ Bending Moment (kN.m) ------ Comb. (Abs. Hax.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 16.200 0.000 0.000 3.000 0.000 0.000 Maxima for Member 17 Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 24.300 0.000 0.000 0.000 0.000 0.000 ______ Maxima for Member 18 Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 40.500 0.000 0.000 0.000 0.000 3.000 ______ Maxima for Member 19 Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 48.600 0.000 0.000 0.000 0.000 3.000 Maxima for Member 20 Load Shear (kN) Maximum Axial (kN) <----- Bending Moment (kN.m) -----> Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m) 1 0.000 0.000 57.276 0.000 4.243 0.000 0.000 _______

Comb.	(Abs.	Max.)(Comp 0.000	pression) 0.000	(Te	nsion 4.365	Max	.+ve 0.000	Pos	- (m)	Ma	0.000	Pos. (m)
			********	***		****				**		========
•											* JOB :	TRUSS
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*				A N	AL	SI	SR	E S	ULT	S	SHEET:	22
*												
* AN#	ALYSE	(C)Copyrigh	ht Compute	er a	nd Des	ian S	Servic	es L	imited	1 10	985	
		********	*****	ex=s	****		exazen	====	*****	-		

Maximum Axial (kN) <----- Bending Moment (kN.m) ----->

Maxima for Member 21
Load Shear (kN)

Maxima	for	Member	2
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Load Sh							
	ear (kN)	Maximum A	xial (kN) <	Bending	Momen	t (kN·m)	>
omb. (A	Ds. Max.	(Compression) (Tension) Max. 11.455	+ve POS. (m) M	axve	POS. (M)
1	0.00	,0 0.000	11.455	0.000 4.2	43		0.000
	or Membe						
oad Sh	near (kN)	Maximum A	xial (kN) <	Bending	Momen	t (kN.m)	
Comb. (A	bs. Max.	.)(Compression) (Tension) Max.	+ve Pos. (m) M	axve	Pos. (m
1	0.00	0.000	11.455	0.000 0.0	100	0.000	4.24
	for Membe						
			xial (kN) <				
Comb. (/	Abs. Max.	.)(Compression) (Tension) Max	+ve Pos. ((m) H	laxve	Pos. (R
1	0.00	0.000	34.365	0.000 0.0	900	0.000	4.24
	for Membe						
Load Si	hear (kN)) Maximum	Axial (kN) <	Bending	Momen	t (kN.m)	
Comb. ()	Abs. Max.	.)(Compression	(Tension) Max	tve Pos.	(m)	laxve	Pos. (m
1	0.00	0.000	57.276	0.000 0.0	000	0.000	4.24
		BINATION 1					
							C1 ana
POSIT	LON (M)	Snear rorce	AXIAI COMP. BE	d.Moment	(-ax	(-ay	(dea)
1 I I	3 000	0.000	40 500	0.000	1.0	-3.8	-0.063
767	3.000	0.000	40.500	0.000	1.1	-3.0	-0.063
0.73L	1 500	0.000	40.500	0.000	1.2	-2.2	-0.063
0.36E	0.750	0.000	40.500	0.000	1.3	-1.3	-0.063
Jt. 2	0.000	0.000	Axial Comp. Ber (kN) 40.500 40.500 40.500 40.500 40.500	0.000	1.4	-0.5	-0.063
			0.000 kN.m				
Maximum	-ve Bend	ding Moment	0.000 kN.m	at 0.000m	from	joint 2	
		BINATION 1	MEMBER 2				
	POR COM						
RESULTS				nd.Moment	dx	dy	Slope
RESULTS				nd.Moment (kN.m)	dx (mm)	dy (mm)	Slope (deg)
RESULTS				nd.Moment (kN.m) 0.000	dx (mm) 0.6	dy (mm) -6.1	Slope (deg) -0.044
RESULTS				nd.Moment (kN.m) 0.000 0.000	dx (mm) 0.6 0.7	dy (mm) -6.1 -5.6	Slope (deg) -0.044
RESULTS				nd.Moment (kN.m) 0.000 0.000	dx (mm) 0.6 0.7	dy (mm) -6.1 -5.6 -5.0	Slope (deg) -0.044 -0.044
RESULTS				nd.Moment (kN.m) 0.000 0.000 0.000	dx (mm) 0.6 0.7 0.8	dy (mm) -6.1 -5.6 -5.0	Slope (deg) -0.044 -0.044 -0.044
Posit. from Jt. 6 0.75L 0.50L 0.25L Jt. 4	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000	Axial Comp. Be (kN) 64.800 64.800 64.800 64.800 64.800				
Posit. from Jt. 6 0.75L 0.50L 0.25L Jt. 4	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000					

* JOB : TRUSS

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			outer and Design S				
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		BINATION 1					
Positi	ion (m)	Shear Force	Axial Comp. Ber	nd.Moment	dx	dy	Slope
from	n End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. B	3.000	0.000	72.900	0.000	0.0	-7.1	-0.018
0./SL	2.250	0.000	72.900	0.000	0.1	-6.9	-0.018
0.305	0.360	0.000	72.900	0.000	0.3	-6.4	-0.018
Jt. 6	0.000	0.000	Axial Comp. Ber (kN) 72.900 72.900 72.900 72.900 72.900 72.900	0.000	0.6	-6.1	-0.018
Maximum	+ve Ben	ding Moment	0.000 kN.m a	at 0.000m	from	joint 6	
Maximum	-ve Ben	ding Moment	0.000 kN.m	at 0.000m	from	joint 6	
		BINATION 1					
Positi	ion (m)	Shear Force	Axial Comp. Ber	nd . Moment	dx	dv	Slope
from	End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 10	3.000	0.000	72.900	0.000	-0.6	-6.1	0.018
0.75L	2.250	0.000	72.900	0.000	-0.4	-6.4	0.018
	1 500	0.000	72.900	0.000	-0.3	-6.6	0.018
0.50L						0	0 010
0.50L 0.25L	0.750	0.000	72.900	0.000	-0.1		
0.50L 0.25L Jt. 8	0.750	0.000	72.900 72.900	0.000	0.0	-7.1	0.018
			Axial Comp. Ber (kN) 72.900 72.900 72.900 72.900 72.900				
Maximum Maximum	+ve Ben	ding Moment ding Moment	0.000 kN.m (at 0.000m at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS	+ve Ben -ve Ben POR COM	ding Moment ding Moment BINATION 1	0.000 kN.m (0.000 kN.m (at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS	+ve Ben -ve Ben POR COM	ding Moment ding Moment BINATION 1	0.000 kN.m (0.000 kN.m (at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS	+ve Ben -ve Ben POR COM	ding Moment ding Moment BINATION 1	0.000 kN.m (0.000 kN.m (at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS	+ve Ben -ve Ben POR COM	ding Moment ding Moment BINATION 1	0.000 kN.m (0.000 kN.m (at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS	+ve Ben -ve Ben POR COM	ding Moment ding Moment BINATION 1	0.000 kN.m (0.000 kN.m (at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS	+ve Ben -ve Ben POR COM	ding Moment ding Moment BINATION 1	0.000 kN.m (0.000 kN.m (at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS	+ve Ben -ve Ben POR COM	ding Moment ding Moment BINATION 1	0.000 kN.m (0.000 kN.m (at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS	+ve Ben -ve Ben POR COM	ding Moment ding Moment BINATION 1	0.000 kN.m (0.000 kN.m (at 0.000m	from from	joint 8 joint 8	
Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	ding Moment ding Moment BINATION 1 Shear Force (kN) 0.000 0.000 0.000 0.000 0.000	0.000 kN.m. of 0.000	at 0.000m at 0.000m and Moment (kN.m) 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.9 -0.8 -0.7	joint 8 joint 8 (mm) -3.8 -4.4 -5.0 -5.6 -6.1	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.25L Jt. 10 Maximum Maximum	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ben -ve Ben	ding Moment ding Moment BINATION 1 Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 ding Moment	0.000 kN.m (nt 0.000m 10.000m 10.000m 10.000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	joint 8 joint 8 dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10 Maximum Maximum	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ben -ve Ben	ding Moment ding Moment BINATION 1 Shear Force (kN) 0.000 0.000 0.000 0.000 0.000	0.000 kN.m. 0.000 kN.m. MEMBER 5 Axial Comp. Ben (kN) 64.800 64.800 64.800 64.800 0000 kN.m. 0.000 kN.m.	at 0.000m at 0.000m and Moment (kN.m) 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	joint 8 joint 8 dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10 Maximum Maximum RESULTS	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Moment dding Homent BINATION 1 Shear Force (kB) 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dding Moment	0.000 kN.m : 0.000 kN.m : MEMBER 5 Axial Comp. Ber (kN) 64.800 64.800 64.800 64.800 64.800 64.800 64.800 64.800	at 0.000m at 0.000m Ind. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 at 0.0000 at 0.0000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10 Maximum Maximum RESULTS	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Moment dding Homent BINATION 1 Shear Force (kB) 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dding Moment	0.000 kN.m : 0.000 kN.m : MEMBER 5 Axial Comp. Ber (kN) 64.800 64.800 64.800 64.800 64.800 64.800 64.800 64.800	at 0.000m at 0.000m Ind. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 at 0.0000 at 0.0000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10 Maximum Maximum RESULTS	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Moment dding Homent BINATION 1 Shear Force (kB) 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dding Moment	0.000 kN.m : 0.000 kN.m : MEMBER 5 Axial Comp. Ber (kN) 64.800 64.800 64.800 64.800 64.800 64.800 64.800 64.800	at 0.000m at 0.000m Ind. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 at 0.0000 at 0.0000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10 Maximum Maximum RESULTS	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Moment dding Homent BINATION 1 Shear Force (kB) 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dding Moment	0.000 kN.m : 0.000 kN.m : MEMBER 5 Axial Comp. Ber (kN) 64.800 64.800 64.800 64.800 64.800 64.800 64.800 64.800	at 0.000m at 0.000m Ind. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 at 0.0000 at 0.0000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10 Maximum Maximum RESULTS	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Moment dding Homent BINATION 1 Shear Force (kB) 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dding Moment	0.000 kN.m : 0.000 kN.m : MEMBER 5 Axial Comp. Ber (kN) 64.800 64.800 64.800 64.800 64.800 64.800 64.800 64.800	at 0.000m at 0.000m Ind. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 at 0.0000 at 0.0000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10 Maximum Maximum RESULTS	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Moment dding Homent BINATION 1 Shear Force (kB) 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dding Moment	0.000 kN.m : 0.000 kN.m : MEMBER 5 Axial Comp. Ber (kN) 64.800 64.800 64.800 64.800 64.800 64.800 64.800 64.800	at 0.000m at 0.000m Ind. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 at 0.0000 at 0.0000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum Maximum RESULTS Positi from Jt. 12 0.75L 0.50L 0.25L Jt. 10 Maximum Maximum RESULTS	+ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ben -ve Ben FOR COM	ding Moment dding Homent BINATION 1 Shear Force (kB) 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dding Moment	0.000 kN.m. 0.000 kN.m. MEMBER 5 Axial Comp. Ben (kN) 64.800 64.800 64.800 64.800 0000 kN.m. 0.000 kN.m.	at 0.000m at 0.000m Ind. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 at 0.0000 at 0.0000	dx (mm) -1.0 -0.9 -0.8 -0.7 -0.6 from	dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10	Slope (deg) 0.044 0.044 0.044 0.044
Maximum Maximum RESULTS Positi Jt. 12 0.75L 0.25L Jt. 10 Maximum Maximum RESULTS Positi Jt. 14 0.75L 0.25L Jt. 12	+ve Ben -ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 0.750 0.000 +ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.000 0.750 0.000	Iding Moment IBINATION 1 Shear Force (kk) 0.000 0.000 0.000 0.000 iding Moment IBINATION 1 Shear Force (kk) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.000 kN.m. 0.000 kN.m. 0.000 kN.m. 0.000 kN.m. 0.000 kN.m. 64.800 64.800 64.800 64.800 0.000 kN.m. 0.	nt 0.000m at 0.000m at 0.000m at 0.000 0.000 0.000 0.000 at 0.000m at 0.000m at 0.000m at 0.000m 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.8 -0.7 -0.6 from from -1.4 -1.3 -1.2 -1.1 -1.0	joint 8 joint 8 dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10 dy (mm) -0.5 -1.3 -2.2 -3.0	Slope (deg) 0.044 0.044 0.044 0.044 0.045 0.063 0.063 0.063 0.063
Maximum Maximum RESULTS Positi Jt. 12 0.75L 0.25L Jt. 10 Maximum Maximum RESULTS Positi Jt. 14 0.75L 0.25L Jt. 12	+ve Ben -ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 0.750 0.000 +ve Ben -ve Ben FOR COM ion (m) m End 1 3.000 2.250 0.000 0.750 0.000	Iding Moment IBINATION 1 Shear Force (kk) 0.000 0.000 0.000 0.000 iding Moment IBINATION 1 Shear Force (kk) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.000 kN.m : 0.000 kN.m : MEMBER 5 Axial Comp. Ber (kN) 64.800 64.800 64.800 64.800 64.800 64.800 64.800 64.800	nt 0.000m at 0.000m at 0.000m at 0.000 0.000 0.000 0.000 at 0.000m at 0.000m at 0.000m at 0.000m 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.8 -0.7 -0.6 from from -1.4 -1.3 -1.2 -1.1 -1.0	joint 8 joint 8 dy (mm) -3.8 -4.4 -5.0 -5.6 -6.1 joint 10 dy (mm) -0.5 -1.3 -2.2 -3.0	Slope (deg) 0.044 0.044 0.044 0.044 0.045 0.063 0.063 0.063 0.063

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		BINATION 1					
Posit	ion (m)	Shear Force	Axial Comp.	Bend . Moment	dx	dv	Slope
	m End 1		(kN)	Bend.Moment (kN.m) 0.000 0.000	(mm)	(mm)	(deg)
				0.000	-0.4	-3.4	-0.065
0.75L	2.250	0.000		0.000	-0.3	-2.6	-0.065
0 . 5OT.	1.500	0.000	35.100	0.000	-0.2	-1.7	-0.065
0.251.	C-750	0.000			-0.1	-0.9	-0.065
Jt. 1	2.250 1.500 C.750 0.000	0.000	35,100	0.000	0.0	-1.7 -0.9 0.0	-0.065
Maximum	tve Ber	ding Moment	0.000 kM	.m at 3.000m .m at 0.000m	from	joint l	
Maximum	-ve Ben	ding Moment	0.000 kN	.m at 0.000m	from	joint l	
		BINATION 1					
Posit	ion (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy (mm) -5.9 -5.3 -4.6	Slope
fro	m End 1	(kN)		(kN·m)	(mm)	(mm)	(deg)
Jt. 5	3.000	0.000		0.000	-0.3	-5.9	-0.047
0.75L	3.000 2.250 1.500	0.000	-5.400	0.000	-0.3	-5.3	-0.047
0.50L	1.500	0.000		0.000	-0.3	-4.6	-0.047
0.251.	0.750	0.000		0.000	-0.3	-4.0	-0.047
Jt. 3	0.000	0.000	-5.400		-0.3 -0.4	-3.4	-0.047
Maximum	t tve Rer	nding Moment	0.000 kN	.m at 3.000m	from	ioint 3	
Maximum	-ve Ber	ding Moment	0.000 kM	.m at 3.000m .m at 0.000m	from	joint 3	
		BINATION 1	MEMBER 9				
RESULTS	FOR CO	MBINATION 1		Bend. Moment			Slope
RESULTS	FOR CO	MBINATION 1 Shear Force	Axial Comp.	Bend. Moment	dx (mm)		Slope
Posit fro	FOR COM	MBINATION 1 Shear Force (kN) 0.000	Axial Comp.	Bend. Moment (kN.m) 0.000	dx (anan)		Slope (deg)
Posit fro	FOR COM	MBINATION 1 Shear Force (kN) 0.000	Axial Comp. (kN) -29.700	Bend. Moment (kN.m) 0.000	dx (mm) 0.0 -0.1		Slope (deg) -0.020
Posit fro	FOR COM	MBINATION 1 Shear Force (kN) 0.000	Axial Comp. (kN) -29.700	Bend.Moment (kN.m) 0.000 0.000	dx (smm) 0.0 -0.1		Slope (deg) -0.020 -0.020
Posit fro	FOR COM	MBINATION 1 Shear Force (kN) 0.000	Axial Comp. (kN) -29.700	Bend. Moment (kN.m) 0.000 0.000 0.000	dx (mm) 0.0 -0.1 -0.2		Slope (deg) -0.020 -0.021 -0.021
Posit fro Jt. 7 0.75L 0.50L 0.25L	ion (m) om End 1 3.000 2.250 1.500	MBINATION 1 Shear Force (kN) 0.000	Axial Comp. (kN) -29.700 -29.700 -29.700 -29.700	Bend. Homent (kN.m) 0.000 0.000 0.000 0.000 0.000	dx (smm) 0.0 -0.1 -0.2 -0.2		Slope (deg) -0.020 -0.020 -0.020
Posit fro Jt. 7 0.75L 0.50L 0.25L Jt. 5	FOR COM sion (m) om End 1 3.000 2.250 1.500 0.750 0.000	Shear Force (kn) 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (NN) -29.700 -29.700 -29.700 -29.700 -29.700	Bend. Homent (kn.m) 0.000 0.000 0.000 0.000 0.000	dx (mm) 0.0 -0.1 -0.2 -0.2 -0.3	dy (mm) -6.9 -6.7 -6.4 -6.1	Slope (deg) -0.020 -0.020 -0.020
Posit fro Jt. 7 0.75L 0.50L 0.25L Jt. 5	FOR COM sion (m) om End 1 3.000 2.250 1.500 0.750 0.000	Shear Force (kn) 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (NN) -29.700 -29.700 -29.700 -29.700 -29.700	(kN.m) 0.000 0.000 0.000 0.000 0.000			Slope (deg) -0.020 -0.020 -0.020
Posit fro Jt. 7 0.75L 0.50L 0.25L Jt. 5 Maximum	ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 n +ve Ber	Shear Force (kn) 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -29.700 -29.700 -29.700 -29.700 -29.700 0.000 kN	.m at 0.000m		dy (man) -6.9 -6.7 -6.4 -6.1 -5.9	Slope (deg) -0.020 -0.020 -0.020 -0.020
Posit fro Jt. 7 0.75L 0.50L 0.25L Jt. 5 Maximum Maximum RESULTS	ion (m) im End 1 3.000 2.250 1.500 0.750 0.000 n +ve Ber -ve Ber	BINATION 1 Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 mding Moment ding Moment	Axial Comp. (kN) -29.700 -29.700 -29.700 -29.700 -29.700 0.000 kN 0.000 kN	.m at 0.000m	from	dy (mm) -6.9 -6.7 -6.4 -6.1 -5.9 joint 5	
Posit fro Jt. 7 0.75L 0.25L Jt. 5 Maximum Maximum RESULTS	ion (m) im End 1 3.000 2.250 1.500 0.750 0.000 n +ve Ber n -ve Ber S FOR COntion (m)	BINATION 1 Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 nding Moment ding Moment MBINATION 1 Shear Force	Axial Comp. (kN) -29.700 -29.700 -29.700 -29.700 0.000 kN 0.000 kN MEMBER 10 Axial Comp.	.m at 0.000m	from	dy (mm) -6.9 -6.7 -6.4 -6.1 -5.9 joint 5	Slope
Posit fro Jt. 7 0.75L 0.50L Jt. 5 Maximum Maximum Posit fro	ion (m) im End 1 3.000 2.250 0.750 0.750 0.000 a +ve Ber -ve Ber ion (m) iom End 1 3.000	BINATION 1 Shear Force (kn) 0.000 0.000 0.000 0.000 0.000 0.000 mding Moment HBINATION 1 Shear Force (kn)	Axial Comp. (kN) -29.700 -29.700 -29.700 -29.700 -29.700 0.000 kN 0.000 kN MEMBER 10 Axial Comp. (kN)	.m at 0.000m	from	dy (mm) -6.9 -6.7 -6.4 -6.1 -5.9 joint 5	Slope (deg
Posit fro Jt. 7 0.75L 0.50L Jt. 5 Maximum Maximum Posit fro	ion (m) im End 1 3.000 2.250 0.750 0.750 0.000 a +ve Ber -ve Ber ion (m) iom End 1 3.000	BINATION 1 Shear Force (kn) 0.000 0.000 0.000 0.000 0.000 0.000 mding Moment HBINATION 1 Shear Force (kn)	Axial Comp. (kN) -29.700 -29.700 -29.700 -29.700 -29.700 0.000 kN 0.000 kN MEMBER 10 Axial Comp. (kN) -29.700	.m at 0.000m	from	dy (mm) -6.9 -6.7 -6.4 -6.1 -5.9 joint 5	Slop (deg 0.02
Posit fro Jt. 7 0.75L 0.50L Jt. 5 Maximum Maximum Posit fro	ion (m) im End 1 3.000 2.250 0.750 0.750 0.000 a +ve Ber -ve Ber ion (m) iom End 1 3.000	BINATION 1 Shear Force (kn) 0.000 0.000 0.000 0.000 0.000 0.000 mding Moment HBINATION 1 Shear Force (kn)	Axial Comp. (kN) -29.700 -29.700 -29.700 -29.700 0.000 kN 0.000 kN MEMBER 10 Axial Comp. (kN) -29.700	.m at 0.000m	from	dy (mm) -6.9 -6.7 -6.4 -6.1 -5.9 joint 5	Slop (deg 0.02
Posit fro Jt. 7 0.75L 0.50L Jt. 5 Maximum Maximum Posit fro	FOR COP ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ber a -ve Ber ion (m) m End 1	BINATION 1 Shear Force (kn) 0.000 0.000 0.000 0.000 0.000 0.000 mding Moment HBINATION 1 Shear Force (kn)	Axial Comp. (kn) -29.700 -29.700 -29.700 -29.700 -29.700 -29.700 0.000 kn 0.000 kn MEMBER 10 Axial Comp. (kn) -29.700 -29.700	.m at 0.000m	from	dy (mm) -6.9 -6.7 -6.4 -6.1 -5.9 joint 5	Slop (deg 0.02 0.02

Maximum +ve Bending Moment 0.000 kN.m at 0.000m from joint 7
Maximum -ve Bending Moment 0.000 kN.m at 3.000m from joint 7

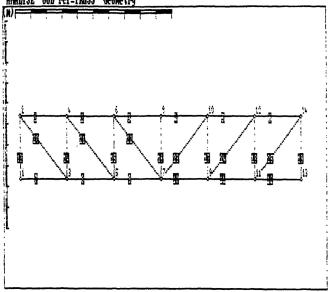
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RESULTS FOR COM	BINATION 1	MEMBER 11		****	*********	*****
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)		(deg)
Jt. 11 3.000	0.000			0.4	-3.4	0.047
0.75L 2.250				0.3	-4.0	0.047
0.50L 1.500				0.3	-4.6	0.047
0.25L 0.750				0.3	-5.3	0.047
Jt. 9 0.000	0.000	-5.400	0.000	0.3	-5.9	0.047
Maximum +ve Ben Maximum -ve Ben	ding Moment	0.000 kN	.m at 0.000m	from	joint 9	
Maximum -ve Ben	ding Moment					
RESULTS FOR COM	BINATION 1	MEMBER 12	***			
Position (m)	Shear Force	Axial Comp.	Bend. Moment	dx	dv	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)		(deg)
Jt. 13 3.000	0.000	35.100	0.000	0.0		0.065
0.75L 2.250 0.50L 1.500	0.000	35.100		0.1		0.065
0.50L 1.500	0.000	35.100	0.000	0.2		
0.25L 0.750	0.000	35.100	0.000	0.3		0.065
Jt. 11 0.000	0.000	35.100	0.000	0.4	-3.4	0.065
Maximum +ve Ben Maximum -ve Ben	ding Moment	0.000 kN	.m at 0.000m	from	joint 11	
Maximum -ve Ben	ding Moment		.m at 3.000m	from	joint 11	
RESULTS FOR COM	BINATION 1	MEMBER 13				
Position (m)		Axial Comp.	Bend.Moment	dx	dv	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)		(deg)
Jt. 2 3.000		48.600	0.000	1.4	-0.5	
0.75L 2.250	0.000	48.600		1.0		
0.50L 1.500	0.000			0.7	-0.3	
0.25L 0.750	0.000	48.600	0.000	0.3	-0.1	
Jt. 1 0.000	0.000	48.600	0.000	0.0		
Maximum +ve Ben	ding Moment	0.000 kN		from	joint 1	
Maximum -ve Ben	ding Moment	0.000 kN	.m at 0.000m	from	inine 1	
RESULTS FOR COM	BINATION 1	MEMBER 14				
Position (m)	Shear Force	Axial Comp.	Bend.Moment	фx	dy	Slope

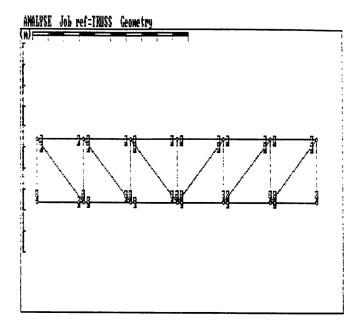
from	End 1	(kN)	(kNg	(kN.m)	(mm)	(mm)	(de 3)
Jt. 4	3.000	0.000	40.500	0.000	1.0	-3.8	89.973
0.75L	2.250.	0.000	40.500	0.000	0.7	-3.7	89.973
0.50L	1.500	0.000	40.500	0.000	0.3	-3.6	89.973
0.251	0.750	0.000	40.500	0.000	0.0		89.973
Jt. 3	0.000		40.500	0.000	-0.4		89.973
							07.773
Maximum Maximum	+ve Ben	ding Moment ding Moment	0.000 kN.m 0.000 kN.m	at 3.000m at 0.000m	from	joint 3	
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RESULTS	FOR COM	BINATION 1 M	EMBER 15				
	ion (m)		Axial Comp. Be		dx		Slope
	e End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 6		0.000	24.300	0.000	0.6	-6.1	
0.75L	2.250	0.000	24.300	0.000	0.3		89.984
0.50L	1.500	0.000	24.300	0.000	0.1	-6.0	89.984
0.25L	0.750	0.000	24.300	0.000	-0.1	-5.9	89.984
Jt. 5	0.000	0.000	24.300	0.000	-0.3	-5.9	89.984
Maximum	+ve Ben	ding Moment	0.000 kN.m	at 3.000m	from	joint 5	
Maximum	-ve Ben	ding Moment	0.000 kN.m 0.000 kN.m	at 0.000m			
		BINATION 1 P					
	ion (m)		Axial Comp. Be	nd.Moment	dx	dy	Slope
	End 1	(kN)	(kN)	(kN.m)	(mm)	(man)	(deg)
Jt. 8	3.000	0.000	16.200	0.000	0.0	-7.1	90.000
0.75L	2.250	0.000	16.200	0.000	0.0	-7.1	90.000
0.50L	1.500	0.000	16.200	0.000	0.0	-7.0	90.000
0.25L	0.750	0.000	16.200	0.000	0.0		
Jt. 7	0.000	0.000		0.000	0.0		
Maximum	+ve Ben	ding Moment	0.000 kN.m	at. 3.000m	from	joint 7	
Maximum	-ve Ben	ding Moment	0.000 kN.m	at 0.000m	from	joint 7	
		BINATION 1					
	ion (m)			end. Homent	dх		
	a End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 10	3.000	0.000	24.300	0.000	-0.6	-6.1	
0.75L	2.250	0.000	24.300	0.000	-0.6 -0.3	-6.1	
0.5QL	1.500	0.000	24.300	0.000	-0.1	-6.0	90.016
0.50L 0.25L	1.500		24.300 24.300		-0.1	-6.0 -5.9	90.016
	1.500	0.000		0.000 0.000 0.000	-0.1 0.1 0.3	-6.0 -5.9	90.016

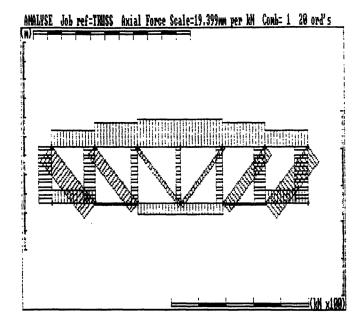
faximum	tve Ben	ding M	oment	0	.000	kN.	m at	0.000m 0.000m	from	joint	9	
ARIBUM	-ve Ben	ding M	oment 	0	.000	kN.	m at	0.000m	from	Joint		
	FOR COM											
Positi	on (m)	Shear	Force	Axial	Com	٠.	Bend.	. Moment	dx		dv	Slope
from	End 1		(kN)		120	4 ١		(kN.m)	(mm)	(m	m)	(deg)
t. 12	3.000		0.000		40.5	ó		0.000	-1.0	-3	.8	90.027
.75L	2.250 1.500 0.750		0.000		40.5	00		0.000	-0.7	-3	. 7	90.027
.50L	1.500		0.000		40.5	00		0.000	-0.3	-3	. 6	90.027
).25L	0.750		0.000		40.5	00		0.000	0.0	-3	.5	90.027
t. 11	0.000		0.000 0.000 0.000 0.000		40.5	00		(kN.m) 0.000 0.000 0.000 0.000	0.4	-3	. 4	90.027
Maximum	tve Ber	ding M	oment	0	.000	kN.	m at	0.000m	from	joint	11	
laximum	-ve Ber	ding M	oment	0	.000	kN.	m at	0.000m 3.000m	from	joint	11	
				•				*********		* JOB	: T	RUSS
:				*						* DATE		
•				*								
•					AL	YS	5 I S	RESU				
	SE (C)					esiq	n Se	rvices Lim	ited	1985		********
RESULTS	FOR CO	(BINATI	ON 1	MEMBER	19			*******		******		
RESULTS	FOR CO	(BINATI	ON 1	MEMBER	19			*******		******		
RESULTS	FOR CO	(BINATI	ON 1	MEMBER	19			*******		******		
RESULTS	FOR CO	(BINATI	ON 1	MEMBER	19			*******		******		
RESULTS	FOR CO	(BINATI	ON 1	MEMBER	19			*******		******		
RESULTS	FOR CO	(BINATI	ON 1	MEMBER	19			*******		******		
RESULTS	FOR CO	(BINATI	ON 1	MEMBER	19			.Moment (kN.m) 0.000 0.000 0.000 0.000		******		
Positi from Jt. 14 0.75L 0.50L 0.25L Jt. 13	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	(BINATI	ON 1 Porce (kN) 0.000 0.000 0.000 0.000	MEMBER Axial	19 Com (k 48.6 48.6 48.6 48.6	P. N) 00 00 00	Bend	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.4 -1.0 -0.7 -0.3	(3 -(-(-(dy (0.5) (1.4) (1.3) (1.1)	Slope (deg 90.02) 90.02) 90.02) 90.02)
Positi from Jt. 14 0.75L 0.50L 0.25L Jt. 13	FOR COM ion (m) a End 1 3.000 2.250 0.750 0.000 +ve Bei	Shear	ON 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000 toment	MEMBER Axial	19 Com (k 48.6 48.6 48.6 48.6 48.6	P. N) 00 00 00 00 00 kN	Bend .m at	*******	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0	(z -(-(-() joint	dy (0.5) (1.4) (1.3) (1.1) (1.0)	Slope (deg 90.02 90.02 90.02 90.02
Positi from Jt. 14 0.75L 0.50L 0.25L Jt. 13 Maximum Maximum	FOR CON ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ber -ve Ber	Shear	ON 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000 foment	MEMBER Axial	19 Com (k 48-6 48-6 48-6 48-6 48-6 2000	P. N) 00 00 00 00 00 kn	Bend .m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000m 3.000m	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from	(II -(-(-(-(joint joint	dy (0.5) (1.4) (1.3) (1.1) (1.0)	Slope (deg 90.02: 90.02: 90.02: 90.02:
Positi from Jt. 14 0.75L 0.50L 0.25L Jt. 13 Maximum Maximum	FOR CON ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ber -ve Ber	Shear	ON 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000 foment	MEMBER Axial	19 Com (k 48-6 48-6 48-6 48-6 48-6 2000	P. N) 00 00 00 00 00 kn	Bend .m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000m 3.000m	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from	(II -(-(-(-(joint joint	dy (0.5) (1.4) (1.3) (1.1) (1.0)	Slope (deg 90.02: 90.02: 90.02: 90.02:
Positi from Jt. 14 0.75L 0.50L 0.25L Jt. 13	FOR CON ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ber -ve Ber	Shear	ON 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000 foment	MEMBER Axial	19 Com (k 48-6 48-6 48-6 48-6 48-6 2000	P. N) 00 00 00 00 00 kn	Bend .m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000m 3.000m	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from	(II -(-(-(-(joint joint	dy (0.5) (1.4) (1.3) (1.1) (1.0)	Slope (deg 90.02: 90.02: 90.02: 90.02:
Positi from Jt. 14 0.75L 0.50L 0.25L Jt. 13 Maximum Maximum	FOR CON ion (m) m End 1 3.000 2.250 0.750 0.000 +ve Ber -ve Ber	Shear	ON 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000 foment	MEMBER Axial	19 Com (k 48-6 48-6 48-6 48-6 48-6 2000	P. N) 00 00 00 00 00 kn	Bend .m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000m 3.000m	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from	(II -(-(-(-(joint joint	dy (0.5) (1.4) (1.3) (1.1) (1.0)	Slope (deg 90.02: 90.02: 90.02: 90.02:
Posit: from Jt. 14 0.75L 0.50L 0.25L Jt. 13 Maximum Maximum Posit: Fosit: Jt. 3 0.75L	FOR COP (ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COP (ion (m) m End 1 4.243 3.182	Shear nding h	ON 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000 foment	MEMBER Axial	19 Com (k 48-6 48-6 48-6 48-6 48-6 2000	P. N) 00 00 00 00 00 kn	Bend .m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000m 3.000m	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from	(II -(-(-(-(joint joint	dy (0.5) (1.4) (1.3) (1.1) (1.0)	Slope (deg 90.02: 90.02: 90.02: 90.02:
Posit: from the first from the first	FOR COP (ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COP (ion (m) m End 1 4.243 3.182	Shear nding h	ON 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000 ioment ioment CON 1 Force (kN) 0.000 0.000	MEMBER Axial O MEMBER Axial	19 (k 48.6 48.6 48.6 48.6 0.000 20 20 Com (k -57.2	P. N) 000 000 000 000 km km P. N) 76 76 76	Bend .m at .m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 .Moment (kN.m) 0.000 0.000	dx (mm) -1.4 -1.0 -0.3 0.0 from from dx (mm) -0.4	(II -(dy (mm) (1.5) (1.3) (1.1) (1.0) (1.3) (1.1) (1.0) (1.3) (1.1) (1.0) (1.1	Slop (deg 90.02: 90.02: 90.02: 90.02: 90.02: Slop (deg -45.04 -45.04
Posit: from the first from the first	FOR COP (ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 +ve Ben -ve Ben FOR COP (ion (m) m End 1 4.243 3.182	Shear nding h	ON 1 Porce (kN) 0.000 0.000 0.000 0.000 0.000 ioment ioment CON 1 Force (kN) 0.000 0.000	MEMBER Axial O MEMBER Axial	19 (k 48.6 48.6 48.6 48.6 .000 .000 .000 .000 .000 .000 .000	P. N) 000 000 000 000 km km	Bend .m at .m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 .Moment (kN.m) 0.000 0.000	dx (mm) -1.4 -1.0 -0.3 0.0 from from dx (mm) -0.4	(II -(dy (mm) ().5 ().4 ().3 ().1 ().0 ().1 ().1 ().1 ().1 ().1 ().1 ().1 ().1	Slope (deg 90.02: 90.02: 90.02: 90.02: 90.02: Slope -45.04 -45.04
Positifor Street	FOR CON 1.00 (m) 3.000 2.250 1.500 0.750 0.000 +ve Beiler -ve Beiler FOR COI ion (m) m End 1 4.243 3.182 2.121 1.061 0.000	Shear nding P nding P MBINATI	Force (kN) 0.000 0.000 0.000 10ment 10ment (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER Axial 0 0 0 MEMBER Axial	19 Com (k 48.6 48.6 48.6 48.6 48.6 .000 .000 .000 .000 .000 .000 .000 .	P.) 000 000 000 000 kN. kN. 76 76	Bend .m at .m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from from dx (mm) -0.4 0.1 0.5 0.9	(r -(((((((((((((-	dy (mm) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	Slop (deg 90.02 90.02 90.02 90.02 90.02 5lop (deg -45.04 -45.04
Positifor 14 of 15	FOR CON 1.00 (m) 3.000 2.250 1.500 0.750 0.000 +ve Beiler -ve Beiler FOR COI ion (m) m End 1 4.243 3.182 2.121 1.061 0.000	Shear nding P nding P MBINATI	Force (kN) 0.000 0.000 0.000 10ment 10ment (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	MEMBER Axial 0 0 0 MEMBER Axial	19 Com (k 48.6 48.6 48.6 48.6 48.6 .000 .000 .000 .000 .000 .000 .000 .	P.) 000 000 000 000 kN. kN. 76 76	Bend .m at .m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from from dx (mm) -0.4 0.1 0.5 0.9	(r -(((((((((((((-	dy (mm) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	Slope (deg 90.02: 90.02: 90.02: 90.02:
Posit: from Jt. 14 0.75L 0.50L 0.25L 0.50L 0.25L 0.50L 0.25L 0.50L 0.25L Jt. 13 Maximum Aximum	FOR COM in End 1 3.000 2.250 0.750 0.000 +ve Bei -ve Bei 1.061 0.000 +ve Bei -ve Bei -ve Bei	Shear ading hading P Shear Shear	Force (kN) 0.000 0.000 0.000 0.000 loment loment (kN) 0.000	Axial O O MEMBER Axial	19 Com (k 48.6 48.6 48.6 48.6 0.000 0.000 	P. N) 000 000 000 000 kn kn 76 76 76 76	Bend .m at m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 .Moment (kN.m) 0.000 0.000	dx (mm) -1.0 -0.7 -0.3 0.0 from from (mm) -0.4 0.1 0.5 0.1	joint joint	dy (mm) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	Slop (deg 90.02 90.02 90.02 90.02 90.02 5lop (deg -45.04 -45.04
Posit: from 1.14 1.75L 1.50L 1.25L 1.25L 1.13 Maximum Maximum 1.16 1.16 1.16 1.16 1.16 1.16 1.16 1.1	FOR COU	MBINATI Shear ading Pading Pad	Force (kN) 0.000 0	MEMBER Axial O O MEMBER Axial	19 Com (k 48.6 48.6 48.6 48.6 .000 .000 Com (k 57.2 57.2 57.2 .57.2 .2 .57.2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .	P. N) 00 00 00 00 00 kn kn 76 76 76 76 76	Bend .m at .m at	Moment (kN.m) 0.000	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from from -0.4 0.1 0.9 1.4 from	(z -(-(-(-(-(-(-(-(-(-(-(-(-(dy (mm) (mm) (mm) (mm) (mm) (mm) (mm) (mm	Slope (deg 90.02: 90.02: 90.02: 90.02: 90.02: Slope -45.04 -45.04 -45.04
Posit: from Jt. 14 0.75L 0.50L 0.25L Jt. 13 Maximum Maximum Armoun Maximum RESULTS	FOR COU	MBINATI Shear ading Pading Pad	Force (kN) 0.000 0	MEMBER Axial O O MEMBER Axial	19 Com (k 48.6 48.6 48.6 48.6 .000 .000 Com (k 57.2 57.2 57.2 .57.2 .2 .57.2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .	P. N) 00 00 00 00 00 kn kn 76 76 76 76 76	Bend .m at .m at	Homent (kM.m) 0.000 0	dx (mm) -1.4 -1.0 -0.7 -0.3 0.0 from from -0.4 0.1 0.9 1.4 from	(z -(-(-(-(-(-(-(-(-(-(-(-(-(dy (mm) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	Slope (deg 90.02: 90.02: 90.02: 90.02: 90.02: Slope (deg -45.04 -45.04 -45.04

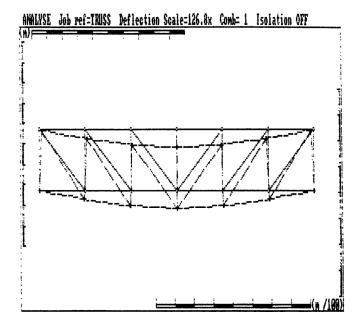
Jt. 5	4.243	0.000	-34.365 -34.365 -34.365 -34.365 -34.365	0.000	-0.3	-5.9	-45.033
0.75L	3.182	0.000	-34.365	0.000	0.0	-5.4	-45.033
0.501.	2.121	0.000	-34.365	0.000	0.4	-4.9	-45.033
0.25T.	1.061	0.000	-34.365	0.000	0.7	-4.3	-45.033
70 4	2.001	0.000	-34 365	0.000	1.0	-3.8	-45.033
							-13.033
Maximum Maximum	tve Ben	ding Moment ding Moment	0.000 kN.m at 0.000 kN.m at	4.243m 0.000m	from from	joint 4 joint 4	
RESULTS	FOR COM	BINATION 1	MEMBER 22				
	(-)	Chase Passa	Axial Comp. Bend (kN) -11.455 -11.455 -11.455 -11.455 -11.455	Wannant	4	du	Slone
POSICI	TON (M)	Shear rorce	AXIAI COMP. Bend	(by a)	/·	()	(deg)
I I I I	m Eng 1	(KN)	(XN)	(KN.E)	(mm)	()	(ueg)
JE. /	4.243	0.000	-11.455	0.000	0.0	-6.9	-45.013
0.75L	3.182	0.000	-11.455	0.000	0.1	-6.7	-45.013
0.50L	2.121	0.000	-11.455	0.000	0.3	~6.5	~45.013
0.25L	1.061	0.000	-11.455	0.000	0.4	-6.3	-45.013
Jt. 6	0.000	0.000	-11.455	0.000	0.6	-6.1	-45.013
			0.000 kN.m at 0.000 kN.m at				
Maximum	-ve Ber	nding Moment	0.000 KN.m at	0.000m	ITOM	Joint 6	
			•				
	******	***********		*********		• JOB : 7	
• •			*				
•			•			· DATE:	
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			· ANALYSIS		. T S	*SHEET.	28
			- 40401919			-311001.	
* ANAL	ASE (C)	copyright comp	uter and Design Se	SLAICES FIW	1 Cea	1382	
		BINATION 1	WENTERS 22		****		120022-7
Posit:	ion (m)			i.Moment	dx	dy	Slope
Posit:	ion (m) m End 1			i.Moment (kN.m)	dx (mm)	dy (sm.)	Slope (deg)
Posit from Jt. 10	ion (m) m End 1 4.243			i.Moment (kN.m) 0.000	dx (mm) -0.6	dy (=m) -6.1	Slope (deg) 45.013
Posit from Jt. 10 0.75L	ion (m) m End 1 4.243 3.182			1.Moment (kN.m) 0.000 0.000	dx (mm) -0.6	dy (mm) -6.1 -6.3	Slope (deg) 45.013 45.013
Posit: from Jt. 10 0.75L	ion (m) m End 1 4.243 3.182			1.Moment (kN.m) 0.000 0.000	dx (mm) -0.6 -0.4	dy (mm) -6.1 -6.3	Slope (deg) 45.013 45.013
Posit: from Jt. 10 0.75L 0.50L	ion (m) m End 1 4.243 3.182 2.121			1.Moment (kN.m) 0.000 0.000	dx (mm) -0.6 -0.4	dy (mm) -6.1 -6.3 -6.5	Slope (deg) 45.013 45.013
Posit: from Jt. 10 0.75L 0.50L 0.25L	ion (m) m End 1 4.243 3.182 2.121 1.061			1.Moment (kN.m) 0.000 0.000 0.000	dx (mm) -0.6 -0.4 -0.3 -0.1	dy (mm) -6.1 -6.3 -6.5 -6.7	Slope (deg) 45.013 45.013 45.013
		Shear Force (kN) 0.000 0.000 0.000 0.000 0.000	Axial Comp. Bend (kN) -11.455 -11.455 -11.455 -11.455 -11.455				
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
		Shear Force (kN) 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455			1-1-4	
Maximum Maximum 	i +ve Ber i -ve Ber i FOR COM ion (m) im End 1 4.243 3.182 2.121 1.061 0.000	Shear Force (KN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dBINATION 1 Shear Force (KN) 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (XN) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at 0.000 kN.m at 0.001 kN.m at 0.000 kN.m at 0.000 kN.m at	d. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0	joint 7 joint 7 dy (mm) -3.8 -4.3 -4.9 -5.4	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum RESULTS Posit: froi Jt. 12 0.75L 0.50L 0.25L Jt. 9 Maximum	i +ve Ber i -ve Ber i FOR CON ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 i +ve Ber	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment ding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at MEMBER 24 Axial Comp. (kN) -34.365 -34.365 -34.365 -34.365	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	from from dx (mm) -1.0 -0.7 -0.4 0.0 0.3	joint 7 joint 7 dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	\$lope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum RESULTS Posit: froi Jt. 12 0.75L 0.50L 0.25L Jt. 9 Maximum Maximum	i +ve Ber -ve Ber i FOR COM ion (m) im End 1 4.243 3.182 2.121 1.061 0.000 i +ve Ber	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 dding Moment dding Moment dding Moment	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	from from dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	joint 7 joint 7 dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	\$lope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum Anximum RESULTS Posit: froi Jt. 12 0.75L 0.25L J.25L Jt. 9 Maximum Maximum RESULTS	FOR CON 1 - VE BET 1 -	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 inding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum Anximum RESULTS Posit: froi Jt. 12 0.75L 0.25L J.25L Jt. 9 Maximum Maximum RESULTS	FOR CON 1 - VE BET 1 -	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 inding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum Anximum RESULTS Posit: froi Jt. 12 0.75L 0.25L J.25L Jt. 9 Maximum Maximum RESULTS	FOR CON 1 - VE BET 1 -	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 inding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum Anximum RESULTS Posit: froi Jt. 12 0.75L 0.25L J.25L Jt. 9 Maximum Maximum RESULTS	FOR CON 1 - VE BET 1 -	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 inding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum Anximum RESULTS Posit: froi Jt. 12 0.75L 0.25L J.25L Jt. 9 Maximum Maximum Maximum RESULTS	FOR CON 1 - VE BET 1 -	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 inding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum Maximum RESULTS Positi froi Jt. 12 0.75L 0.50L 0.25L Jt. 9 Maximum Maximum Maximum RESULTS	FOR CON 1 - VE BET 1 -	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 inding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum Anximum RESULTS Posit: froi Jt. 12 0.75L 0.25L J.25L Jt. 9 Maximum Maximum Maximum RESULTS	FOR CON 1 - VE BET 1 -	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 inding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum Anximum RESULTS Posit: froi Jt. 12 0.75L 0.25L J.25L Jt. 9 Maximum Maximum Maximum RESULTS	FOR CON 1 - VE BET 1 -	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 inding Moment dding Moment Shear Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dx (mm) -1.0 -0.7 -0.4 0.0 0.3 from	dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9	Slope (deg) 45.033 45.033 45.033 45.033
Maximum Maximum RESULTS Posit: froi Jt. 12 0.75L 0.50L 0.25L Jt. 9 Maximum Maximum RESULTS Posit: froi Jt. 14 0.75L 0.25L Jt. 14 0.75L	i +ve Beri -ve Beri -	Shear Force ((KN) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment dding Moment (KN) 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at	1. Noment (kN.m) 0.000	dx (mm) -1.0 0.3 from dx (mm) -0.7 -0.4 0.3 from -1.4 -0.9 -0.5 -0.1 0.4	joint 7 joint 7 dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9 joint 9 dy (mm) -0.5 -1.2 -2.0 -2.7 -3.4	Slope (deg) 45.033 45.033 45.033 45.033 45.033 45.044 45.044 45.044 45.044 45.044
Maximum Maximum RESULTS Posit: froi Jt. 12 0.75L 0.50L 0.25L Jt. 9 Maximum Maximum RESULTS Posit: froi Jt. 14 0.75L 0.25L Jt. 14	i +ve Beri -ve Beri -	Shear Force ((KN) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment dding Moment (KN) 0.000	Axial Comp. (kN) -11.455 -11.455 -11.455 -11.455 -11.455 0.000 kN.m at 0.000 kN.m at NEMBER 24 Axial Comp. Benc (kN) -34.365 -34.365 -34.365 -34.365 -34.365 -34.365 0.000 kN.m at	1. Noment (kN.m) 0.000	dx (mm) -1.0 0.3 from dx (mm) -0.7 -0.4 0.3 from -1.4 -0.9 -0.5 -0.1 0.4	joint 7 joint 7 dy (mm) -3.8 -4.3 -4.9 -5.4 -5.9 joint 9 joint 9 dy (mm) -0.5 -1.2 -2.0 -2.7 -3.4	Slope (deg) 45.033 45.033 45.033 45.033 45.033 45.034 45.044 45.044 45.044 45.044

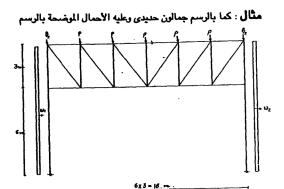
ANALYSE Job ref=TRUSS Geometry











$$P(D.L) = 0.72 t$$

P(L.L) = 0.9 t

W1 = 0.6 t/m

W2 = 0.3 t/m

60 X 60 X 6 mm

70 X 70 X 7 mm 60 X 60 X 6 mm - قطاع الجمالون كما بالرسم

- قطاع الأعمدة 1PE 400

- تظهر بيانات ونتائج المنشأ كالاتي :

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•	•						 				* JOB : COLT
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*							 				

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PRAME GEOMETRY

No. of Joints = 16

MEMBERS

MEMBERS					
:	End Detail	ls:	End 2 Details	:-	
Mem:Jt.:C:	X coord :	Y coord :Jt.:C:	X Coord : Y	Coord :	Length : Slope
No.:no.: :	(m) :	(m) :no.: :	(m):	(m) :	(m): (dea)
::-:	:		::	:-	
1: 2:P:	0.000 :	3.000 : 4:P:	3.000 :	3.000 :	3.000 : 0.00
2: 4:P:	3.000 r	3.000 : 6:P:	6.000 :	3.000 :	3.000 : 0.00
3: 6:P:	6.000 :	3.000 : 8:P:		3.000 :	3.000 : 0.00
4: 8:P:	9.000 :	3.000 : 10:P:		3.000 :	3.000 : 0.00
5: 10:P:	12.000 :	3.000 : 12:P:		3.000 t	3.000 ; 0.00
6: 12:P:	15.000 :	3.000 : 14:P:		3.000 :	3.000 : 0.00
7: 1:P:	0.000 :	0.000 : 3:P:		0.000 :	3.000 : 0.00
8: 3:P:	3.000 :	0.000 : 5:F:		0.000 :	3.000 : 0.00
9: 5:P:	6.000 :	0.000 : 7:F:	9.000 :	0.000 :	3.000 : 0.00
10: 7:P:	9.000 :	0.000 : 9:F:		0.000 :	3.000 : 0.00
11: 9:P:	12.000 :	0.000 : 11:F:	15.000 :	0.000 :	3.000 : 0.00
12: 11:P:	15.000 :	0.000 : 13:P:	18.000 :	0.000 :	3.000 : 0.00
13. 1:P:	0.000 :	0.000 : 2:F:	0.000 :	3.000 :	3.000 : 90.00
14: 3:P:	3.000 :	0.000 : 4:F:	3.000 :	3.000 :	3.000 : 90.00
15: 5:P:	6.000 :	0.000 : 6:F:	6.000 :	3.000 :	3.000 : 90.00
16: 7:P:	9.000 :	0.000 : 8:F:	9.000 :	3.000 :	3.000 : 90.00
17: 9:P:	12.000 :	0.000 : 10:F:	12.000 :	3.000 :	3.000 : 90.00
18: 11:P:	15.000 :	0.000 : 12:F:	15.000 :	3.000 :	3.000 : 90.00
19: 13:F:	18.000 :	0.000 : 14:F:	18.000 :	3.000 :	3.000 : 90.00
20: 2:P:	0.000 :	3.000 : 3:F:	3.000 :	0.000 :	4.243 : -45.00
21: 4:P:	3.000 :	3.000 : 5:P:	6.000 :	0.000 :	4.243 : -45.00
22: 6:P:	6.000 :	3.000 : 7:P:	9.000 :	0.000 :	4.243 : -45.00
23: 7:P:	9.000 :	0.000 : 10:P:	12.000 :	3.000 :	4.243 : 45.00
24: 9:P:	12.000 :	0.000 : 12:P:	15.000 :	3.000 :	4.243 : 45.00
25: 11:P:	15.000 :	0.000 : 14:P:	18.000 :	3.000 :	4.243 : 45.00
26: 15:F:	0.000 :	-6.000 : 1:F:	0.000 :	0.000 :	6.000 : 90.00
27: 16:F:	18.000 :	-6.000 : 13:F:	18.000 :	0.000 :	6.000 : 90.00

TABLE OF SECTIONS Area: . Inertia: Rectangular Elements (if specified), Section -: Number : (cm2): (cm4): No: D (mm): B (mm): Y (mm) -:-18.80: 84.8: : ٠ ----:------:---13.82: 45.6: . •

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84.50: SUMMARY OF MEMBER PROPERTIES

23130.0: .

Member 1 - 6 PRISMATIC : Section Number 1 : Modulus E = 210000.0 N/mm2 Member 7 - 12 PRISMATIC : Section Number 2 : Modulus E = 210000.0 N/mm2 Continued on Next Page)-----

* JOB : COLT * DATE: 2 INPUT DATA *SHEET: ANALYSE (C)Copyright Computer and Design Services Limited 1985

-----SUMMARY OF MEMBER PROPERTIES continued

Member 13 PRISMATIC : Section Number 3 : Modulus E = 210000.0 N/mm2 Member 14 - 18 PRISMATIC : Section Number 2 : Modulus E = 210000.0 N/mm2 Member 19 PRISHATIC : Section Number 3 : Modulus E = 210000.0 N/mm2 Member 20 - 25 PRISMATIC : Section Number 2 : Modulus E = 210000.0 N/mm2 Member 26 ~ 27 PRISMATIC : Section Number 3 : Modulus E = 210000.0 N/mm2 SUPPORTS

No. of Supports = 2

Humber		(kH/mm)		(kH/==)	:	Angular Restraint (kN.m/radian)
15	:	PULL FULL	:	FULL FULL	:	ZERO ZERO

APPLIED LOADS AND MOMENTS

MEMBER 13

	AD CASE	:LOAD: P O		OAD/MOM Start Value:	ENT End Value
3.	WIND LOA			6.000 kN/m:	

MEMBER 19 L O A D C A S T :LOAD: P O S I T I O N : L O A D / H O H E N T NO : Name :Type: Start: Length: Start Value: End Value: End Value: Start Value: End Value:												
No : Name : Type: Start: Length: Start Value: End Value: It will be start value: End Value: End Value: It will be start value: End Value: End Value: It will be start value: End Value: It will be start value: End Value: End Value: It will be start value: End Value: End Value: It will be start value: End Value: End Value: It will be start value: End Value: It will b												
STATE STAT	lo : Nase			:Type:		Start	:	Length:		Start Valu	e:	End Valu
LOAD CASE :LOAD: POSITION :LOAD/HOMENT No: Name :Type: Start: Length: Start Value: End Val 3: MIND LOAD: UH: : : 6.000 kN/m: MEMBER 27 LOAD CASE :LOAD: POSITION :LOAD/HOMENT No: Name :Type: Start: Length: Start Value: End Val 3: MIND LOAD: UH: : : 3.000 kN/m:	3:	WIND	LOAD	: UH :						3.000 kN/	m:	
NO: Name : Type: Start: Length: Start Value: End Value: I: 6.000 kM/m: I												
LOAD CASE :LOAD: POSITION :LOAD/HONENT No: Name :Type: Start: Length: Start Value: End Val 3: WIND LOAD: OH: : : 3.000 km/m:	LOAD No:Name	CAS	E	:LCAD: :Type:	РО	S I T Start	10	N : Length:	L	O A D / M C	MEN	T End Valu
MEMBER 27 L O A D C A S E :LOAD: P O S I T I O N : L O A D / N O N E N T No: Hame :Type: Start: Length: Start Value: End Val 3: WIND LOAD: UH: : : 3.000 kN/m: -	3:	WIND	LOAD	: UH :			:			6.000 kN/	m:	
No : Name : Type: Start: Length: Start Value: End Value: 3: WIND LOAD: UH: : : 3.000 km/m: * JOB : COLT * DATE: * IN PUT DATA *5HEET: 3 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * APPLIED LOADS AND MOMENTS Continued JOINT 2 L O A D C A S E :LOAD: LOAD / MOMENT No: Name : Type: Value 1: Dead Load: PV: 3.600 km 2: LIVE LOAD: PV: 4.500 km JOINT 4 LO A D C A S E :LOAD: LOAD / MOMENT KO: Name : Type: Value 1: Dead Load: PV: 7.200 km 2: LIVE LOAD: PV: 9.000 km JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT KO: Name : Type: Value 1: Dead Load: PV: 9.000 km JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT KO: Name : Type: Value 1: Dead Load: PV: 9.000 km JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT KO: Name : Type: Value 1: Dead Load: PV: 9.000 km					-~							
3: WIND LOAD: UH: : : 3.000 kN/m: . JOB:: COLT . DATE: . IN PUT DATA *SMEET: 3 - ANALYSE (C)Copyright Computer and Design Services Limited 1985 APPLIED LOADS AND MOMENTS Continued JOINT 2 LO A D C A S E :LOAD: LOAD / MOMENT MO: Name :Type: Value 1: Dead Load: PV: 3.600 kN 2: LIVE LOAD: PV: 4.500 kN JOINT 4 LO A D C A S E :LOAD: LOAD / MOMENT MO: Rame :Type: Value 1: Dead Load: PV: 7.200 kN JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT MO: LIVE LOAD: PV: 9.000 kN JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT NO: Rame :Type: Value 1: Dead Load: PV: 9.000 kN JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT MO: Rame :Type: Value	No : Name			:Type:		Start		Length	:	Start Valu	ie:	End Valu
* JOB : COLT * DATE: * IN PUT DATA *SHEET: 3 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * APPLIED LOADS AND MOMENTS Continued JOINT 2 LO A D C A S E :LOAD: LOAD / MOMENT No : Name :Type: Value	3:	WIND	LOAD	: UH :			:			3.000 kN/	m:	
ANALYSE (C)Copyright Computer and Design Services Limited 1985 APPLIED LOADS AND MOMENTS Continued JOINT 2 L O A D C A S E :LOAD: LOAD / MOMENT SO: Name	: } •				•						* DATE	:
ARPLIED LOADS AND MOMENTS Continued JOINT 2 L O A D C A S E :LOAD: LOAD / MOMENT NO: Name: 'Type: Value 1: Dead Load: PV : 3.600 kN 2: LIVE LOAD: PV : 4.500 kN JOINT 4 LO A D C A S E :LOAD: LOAD / MOMENT NO: Rame: 'Type: Value 1: Dead Load: PV : 7.200 kN 2: LIVE LOAD: PV : 9.000 kN JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT NO: Rame: 'Type: Value 1: Dead Load: PV : 7.200 kN JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT NO: Name: 'Type: Value	:						I N	PUT	D	ATA	*SHEET	: 3
APPLIED LOADS AND MOMENTS Continued JOINT 2 LO A D C A S E :LOAD: LOAD / MOMENT No : Name :Type: Value 1: Dead Load: PV : 3.600 kN 2: LIVE LOAD: PV : 4.500 kN JOINT 4 LO A D C A S E :LOAD: LOAD / MOMENT No : Name :Type: Value 1: Dead Load: PV : 7.200 kN 2: LIVE LOAD: PV : 9.000 kN JOINT 6 LO A D C A S E :LOAD: LOAD / MOMENT NO :Name :Type: Value	* ANALYS	E (C)C	opvri	aht Co	mout	er and	Des	ian Serv	/ic	es Limited	1985	
L O A D C A S E :LOAD: LOAD / MOMENT NO: Name :Type: Value 1:							****			多是祖宗祖共宣母以 完定:	*****	*****
No: Name :Type: Value 1:	JOINT 2											
1: Dead Load: PV: 3.600 kN JOINT 4 L O A D C A S E :LOAD: LOAD / MOHENT NO: Mame :Type: Value 1: Dead Load: PV: 7.200 kN 2: LIVE LOAD: PV: 9.000 kN JOINT 6 L O A D C A S E :LOAD: LOAD / MOHENT NO: Mame :Type: Value	No : Name			:Type:		Value						
JOINT 4 L O A D C A S E :LOAD: LOAD / MOMENT No: Name :Type: Value 1: Dead Load: PV: 7.200 kN 2: LIVE LOAD: PV: 9.000 kN JOINT 6 L O A D C A S E :LOAD: LOAD / MOMENT No: Name :Type: Value	1: 2:	Dead LIVE	LOAD	: PV :		3.60 4.50	0 kN					
No: Name : Type: Value 1:												
1:	No : Name			:Type:		Value						
JOINT 6 LOAD CASE :LOAD: LOAD / MOMENT NO: Name :Type: Value	1: 2:	Dead LIVE	Load	: PV :		7.20	0 kN	1				
No : Name :Type: Value												
	No : Name			:Type:		Value						

2:	LIVE	LOAD: P	v:	9.000	kN	
JOINT 8						
No : Name		:Ty	pe:	LOAD / HOM Value		
1:	Dead	Load: P	v :	7.200	kN	
JOINT 10						
No : Name		:Ty	pe:	LOAD / MOM Value		
1: 2:	Dead LIVE	Load: E	. v	7.200 9.000	kN kN	
JOINT 12						
No : Name		:Ty	pe:	LOAD / MOM Value		
1: 2:	Dead LIVE	Load: E	: V:	7.200 9.000	kN kN	

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APPLIED LOADS A	ND MOMENTS Con	tinued			
JOINT 14					
LOAD CAS	E ILOAD LO	AD / MOME	NT		
No: Name	:Type:				
:	:				
1: Dead	Load: PV :	3.600	kN		
2: LIVE	LOAD: PV :	4.500	kN		
				# # * * * * * * * * * * * * * * * * * *	
COMBINATIONS					
LOAD CAS				L SAFETY FACT	roks
No: Name	E : Combina	tion Numb	er		
		2			
1: Dead	Load:1.000:1.				
	LOAD:1.000:1.				
	TOWD: 1.000:1.	000			
3: WIND	LOAD: :1.	000			
P 6 7 2 7 2 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2			********	*******	

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		and Reacti	ions			
Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Pv (kN)	M (kN.m)
1	-0.87	-0.16 -0.25 -3.63 -4.04	-0.0004		-,	
2	1.25	-0.25	-0.0009			
3	-0.95	-3.63	-0.0009			
4	0.98	-4.04	-0.0006			
5	-0.60	-6.33	-0.0009			
6	0.52	-6.58	-0.0004 -0.0003			
7						
8	0.00	-7.50 -6.33 -6.58 -3.63 -4.04 -0.16 -0.25	0.0000			
9	0.60	-6.33	0.0003			
10	-0.52	-6.58	0.0004			
11	0.95	-3.63	0.0009			
12	-0.98	-4.04	0.0006			
13	0.87	-0.16	0.0004			
14	-1.25	-0.25	0.0009			
15	0.00		0.0004 -0.0004	2.303 -2.303	48.600	0.000
16						
				-2.303	48.600	0.000
		and Momen		-2.303		
Summation o	of Forces	and Momen	ts			
Summation o	of Forces	and Momen	ts		48.600	
Summation o	of Forces	and Momens Px (kN) 0.000 0.000	Py (kN) 0.000 -97.200	Mo (kN.m) 0.000 -874.800	46.600	
Summation of Member Loads Joint Loads	of Forces	Px (kN) 0.000 0.000	Py (kN) 0.000 -97.200	Mo (kN.m) 0.000 -874.800	48.600	
Summation of Member Loads Joint Loads Reactions	of Forces	Px (kN) 0.000 0.000 0.000	Py (kn) 0.000 -97.200 -97.200 97.200	Mo (kN.m) 0.000 -874.800 -874.800 874.800	48.600	
Summation of Member Loads Joint Loads Reactions Summation	of Forces	Px (kN) 0.000 0.000 0.000 0.000	Py (kN) 0.000 -97.200	Mo (kN.m) 0.000 -874.800 -874.800 874.800	46.500	
	of Forces	Px (kN) 0.000 0.000 0.000 0.000	Py (kN) 0.000 -97.200 -97.200 97.200	Mo (kN.m) 0.000 -874.800 -874.800 874.800	46.500	
Member Load Joint Loads Reactions Summation Summation	of Forces	Px (kN) 0.000 0.000 0.000 0.000	Py (kN) 0.000 -97.200 -97.200 97.200	Mo (kN.m) 0.000 -874.800 -874.800 874.800	46.500	
Summation of Hember Load Reactions Summation Summation RESULTS FOR Joint Display	of Forces is R COMBINA	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2	Py (kn) 0.000 -97.200 -97.200 97.200 0.000	Mo (kN.m) 0.000 -874.800 -874.800 874.800		
Member Load Joint Load Reactions Summation Summation RESULTS FOI Joint Displ	of Forces ds a R COMBINA Lacements dx(mm) 69.04	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 TION 2 and React dy(mm) -0.10	Py (km) 0.000 -97.200 -97.200 0.000 0.000	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of Member Load Joint Loads Reactions Summation RESULTS FOR Joint Display Joint No.	R COMBINA lacements dx(mm) 69.04	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 VTION 2 0 and React dy(mm) -0.10	Py (kn) 0.000 -97.200 97.200 97.200 0.000	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of Member Load Joint Load Reactions Summation Summation RESULTS FOM Joint Displ Joint No. 1 2 3	of Forces is a COMBINA Lacements dx(mm) 69.04 72.94 69.51	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 VTION 2 0 and React dy(mm) -0.10	Py (kn) 0.000 -97.200 97.200 97.200 0.000	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of Hember Load Joint Loads Reactions Summation Summation RESULTS FOI Joint Displ Joint No.	of Forces is R COMBINI Lacements dx (mg) 72.94 69.51 72.35	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 0 and React dy(mm) -0.10 -0.14 -4.16 -4.37	Py (kN) 0.000 -97.200 -97.200 0.000 0.000 0.000 0(rad) -0.0044 0.0003 -0.0012 -0.0009	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of Hember Load Joint Load Reactions Summation Summation LESULTS FOR Joint Displ Joint No. 1 2 3 4 5	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 and React dy(mm) -0.10 -0.14 -4.16 -4.37 -6.64	Py (kN) 0.000 -97.200 97.200 97.200 0.000 0.000 0 (rad) -0.0044 0.0003 -0.0012 -0.0009 -0.0008	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of tember Load Joint Loads Reactions Summation Summation Project Point Display Joint No.	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 and React dy(mm) -0.10 -0.14 -4.16 -4.37 -6.64	Py (kN) 0.000 -97.200 97.200 97.200 0.000 0.000 0 (rad) -0.0044 0.0003 -0.0012 -0.0009 -0.0008	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of tember Load Toint Loads Reactions Summation Summation RESULTS FOR Joint Display Joint No.	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 and React dy(mm) -0.10 -0.14 -4.16 -4.37 -6.64	Py (kN) 0.000 -97.200 97.200 97.200 0.000 0.000 0 (rad) -0.0044 0.0003 -0.0012 -0.0009 -0.0008	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Member Load Joint Loads Reactions Summation Summation Joint Displ Joint No. 1 2 3 4 5 6 7	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 and React dy(mm) -0.10 -0.14 -4.16 -4.37 -6.64	Py (kN) 0.000 -97.200 97.200 97.200 0.000 0.000 0 (rad) -0.0044 0.0003 -0.0012 -0.0009 -0.0008	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
dember Load Reactions Summation Summation Summation Summation Joint Displ Joint No. 1 2 3 4 5 6 7 8	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 and React dy(mm) -0.10 -0.14 -4.16 -4.37 -6.64	Py (kN) 0.000 -97.200 97.200 97.200 0.000 0.000 0 (rad) -0.0044 0.0003 -0.0012 -0.0009 -0.0008	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of Member Load Reactions Summation Summation Joint Displ Joint No. 1 2 3 4 5 6 7 8 9	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 and React dy(mm) -0.10 -0.14 -4.16 -4.37 -6.64	Py (kN) 0.000 -97.200 97.200 97.200 0.000 0.000 0 (rad) -0.0044 0.0003 -0.0012 -0.0009 -0.0008	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of Member Loads Admits Loads Agent Loads Age	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 and React dy(mm) -0.10 -0.14 -4.16 -4.37 -6.64	Py (kN) 0.000 -97.200 97.200 97.200 0.000 0.000 0 (rad) -0.0044 0.0003 -0.0012 -0.0009 -0.0008	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Summation of tember Loads Reactions Summation Summation Summation Summation Joint No. 1 2 3 4 6 6 7 8 9 10 11 12 13	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 VIION 2 and React dy(mm) -0.10 -0.14 -4.16 -4.37 -6.64	Py (kN) 0.000 -97.200 97.200 97.200 0.000 0.000 0 (rad) -0.0044 0.0003 -0.0012 -0.0009 -0.0008	Mo (kN.m) 0.000 -874.800 -874.800 0.000		
Hember Load Joint Load Results For Summation Summation RESULTS FOR Joint No. 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14	dx (mm) 69.04 72.94 69.51 72.35 70.19 71.73 70.92 71.22 70.67 71.06 70.36 70.28 70.38	Px (kN) 0.000	Py (kN) 0.000 97.200 97.200 97.200 0.000 ions ((rad) 0.0040 0.0003 0.0010 0.0005 0.0005 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	Ho (kN.m) 0.000 -874.800 -874.800 0.000 Px (kN)		
Hember Load: Reactions Summation Summation Summation PRESULTS FOI Joint No. 1 2 3 4 6 6 7 8 9 10 11 12 13	COMBINA dx(mm) 69.04 72.94 69.51 72.35 70.19	Px (kN) 0.000	Py (kN) 0.000 97.200 97.200 97.200 0.000 ions ((rad) 0.0040 0.0003 0.0010 0.0005 0.0005 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	Mo (kN.m) 0.000 -874.800 -874.800 0.000		

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RESULTS FOR CO	MBINATION 2 cont					
Summation of F	orces and Moment	.8				
	Px (kN)	Py (kN)	Mo (kN.m			
Member Loads	81.000	0.000	121.50	Ó		
Joint Loads	0.000	-97.200	-874.80			
Reactions	81.000	-97.200	-753.30			
Summation	-81.000	-97.200 97.200	753.30			
Summation	0.000	0.000	0.00	0		
Maxima for Men	mber 1					
Load Shear (k	(N) Maximum A	kial (kN)	< Be	nding Mom	ent (kN.m)	>
Comb. (Abs. Ma	x.)(Compression	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1 0.	.000 35.894 .000 77.602	0.000	0.000	0.000	0.000	0.000
Maxima for Men						
Load Shear (k	cN) Maximum A: ax.)(Compression	Klai (KN) \ (Tension)	May to	nding Mome	ent (KN.m)	Pos. (m)
1 0.	.000 60.194	0.000	0.000	0.000	0.000	0.000
20.	.000 81.652	0.000	0.000	0.000	0.000	0.000
Maxima for Men	nber 3					
Load Shear (k	cN) Maximum A:	kial (kN)	< Be	nding Mome	ent (kN.m)	>
Comb. (Abs. Ma	x.)(Compression) (Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
	.000 68.294 .000 69.502	0.000	0.000	0.000	0.000	
Maxima for Men	ther 4					
Load Shear ()	(N) Maximum A: ax.)(Compression	kial (kN) \ (Tension)	May tuo	nding Mome	ent (kN.m)	Pos (m)
1 0.	.000 68.294	0.000	0.000	0.000	0.000	0.000
2 0.	.000 69.502	0.000	0.000	0.000	0.000	0.000
Maxima for Men	mber 5					
Load Shear ()	cN) Maximum A	kial (kN)	< Be	nding Mom	ent (kN.m)	>
Comb. (Abs. Ma	ax.)(Compression	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
2 0.	.000 60.194 .000 41.152	0.000	0.000	0.000	0.000	0.000
Maxima for Men	mber 6					
Load Shear ()	cN) Maximum A:	kial (kN)	< Be	nding Mom	ent (kN.m)	>
Comb. (Abs. Me	ax.)(Compression	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1 0.	.000 35.894 .000 0.000	0.000 3.398	0.000	0.000	0.000	0.000
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Marim	a for I	Kember	. 7					
Load	Shear	(kN)	Maximum Axi	ial (kN) <	Ве	ending Mom	ent (kN.m)	>
Comp.	(ADS.	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1		0.000	6.909 0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	45.528	0.000	0.000	0.000	0.000
	a for I							
Load	Shear	(kN)	Maximum Axi	ial (kN) <	Ве	ending Mom	ent (kN.m)	>
Comb.	(Abs.	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1		0.000	0.000	33.591	0.000	3.000	0.000	0.000
2		0.000	0.000	65.778	0.000	0.000	0.000	3.000
	a for 1		9					
Load	Shear	(kN)	Maximum Axi	ial (kN) <	Re	ending Mor	ent (kN.m)	>
Comb.	(Abs.	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Mayve	Pos (m)
1		0.000	0.000	57.891	0.000	0.000	0.000	3 000
2		0.000	0.000	69.828	0.000	3.000	0.000	0.000
	a for		10					
Load	Shear	(kN)	Maximum Ax	ial (kN)	Re	ending Mon	ent (kN.m)	>
Comb.	(Abs.	Max.	(Compression)	(Tension)	Max.+ve	Pos. (m)	Mayve	Pos (m)
1	,	0.000	0.000	57.891	0.000	0.000	0.000	3.000
2		0.000	0.000	29.328	0.000	0.000	0.000	3.000
	a for							
Tond	Chan-	(ku)	Mandania 8	-1 (1-11)				
Comb	Onear	(KA)	Maximum Ax: (Compression)	Lai (KN) 4	Be	enging Mor	ent (KN.m)	
	(ADB.	0.000	(COMPLESSION)	(Tension)	max.+ve	POS. (M)	Maxve	POS. (M)
5		0.000	0.000 15.222	0.000	0.000	3.000	0.000	3.000
								
Maxim	a for	Member	: 12					
Load	Shear	(kN)	Maximum Ax	ial (kN) <	Be	ending Mom	ent (kN.m)	>
Comb.	(Abs.	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1		0.000	6.909 75.972	0.000	0.000	0.000	0.000	0.000
2		0.000	75.972	0.000	0.000	0.000	0.000	0.000

2	0.000	75.972	0.000	0.000	0.000	0.000	0.000
Maxima	for Member	13					
	Shear (kN)	Maximum Axi	al (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	4.606	48.600	0.000	0.000	3.000	-13.819	0.000
2	-57.352	28.350	0.000	145.057	0.000	0.000	3.000

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Load	Shear ((kN)	Maximum Ax	ial (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. N	(ax.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
2		0.000	40.500 20.250	0.000	0.000	3.000	0.000	0.000
	a for Me							
Load	Shear	(kN)	Maximum Ax	ial (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. I	dar. 1	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	(0.000	24.300 4.050	0.000	0.000	3.000	0.000	0.000
2		0.000	4.050	0.000	0.000	0.000	0.000	3.000
Maxim	a for Me	ember						
Load	Shear	(kN)	Maximum Ax	ial (kN)	< Be	ending Mon	ent (kN.m)	>
Comb.	(Abs.)	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
ī		0.000	16.200 16.200	0.000	0.000	0.000	0.000	3.000
			16.200	0.000	0.000	3.000	0.000	0.000
Maxim	a for Me	ember	17					
Load	Shear	(kN)	Maximum Ax	ial (kN)	< Be	ending Mon	ent (kN.m)	>
Comb.	(Abs. 1	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	9	0.000	24.300 44.550	0.000	0.000	0.000	0.000	3.000
2			44.550	0.000	0.000	0.000	0.000	3.000
Maxim	a for Me	ember	18					
			Maximum Ax					
COMP.	(ADS.	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
2	,	0.000	40.500 60.750	0.000	0.000	3.000	0.000	0.000
	a for Me							
Tond	Chann	Lar	Maximum Ax	i-1 /hw.		: W		
Comb.	(Abs.)	May \	(Compression)	(Tension)	May tve	Pos (m)	May -ve	Pos (m)
1	(100.	1.606	48.600	0.000	13.819	0.000	0.000	3.000
2	-64	4.148	48.600 68.850					
	a for Me	ember	20					
Maxim								
Load	Shear	(kN)	Maximum Ax	ial (kN)	< Be	ending Mon	ment (kN.m)	>
Load Comb.	(Abs. 1	Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
Load	(Abs. 1	Max.)	Maximum Ax (Compression) 0.000 0.000	(Tension) 57.276	Max.+ve 0.000	Pos. (m) 4.243	Maxve 0.000	Pos. (m)

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	for Member 21						
oad S	Shear (kN)	Mariana Ari	-1 /FW	Be	nding Mom	ent (kN m)	
omb.	(Abs. Max.)(Co	mpression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
1	0.000	0.000	34.365	0.000	4.243	0.000	0.000
2	0.000	0.000		0.000	4.243	0.000	0.00
 faxima	for Member 22						
oad 9	Shear (kN)	Mavimum Av	al (kN)	C Re	ending Mom	ent (kN.m)	
Comb.	(Abs. Max.)(Co	mpression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
1	0.000	0.000	11.455	0.000	4.243	0.000	0.00
2	0.000	17.183	0.000	0.000	4.243	0.000	0.00
laxima	for Member 23						
Load 9	Shear (kN)	Maximum Ax	ial (kN)	< Be	ending Mon	ent (kN.m)	
	(Abs. Max.)(Co	mpression)	(Tension)	Max.+ve	Pos. (m)	Maxve	
1	0.000	0.000	11.455	0.000	0.000	0.000	4.24
2	0.000	0.000	40.093	0.000	0.000		4.24
Maxima	for Member 24						
Load !	Shear (kN)	Maximum Ax	ial (kN)	< Be	ending Mon	ent (kN.m)	
Comb.	(Abs. Max.)(Co	mpression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
1	0.000	0.000	34.365	0.000	0.000	0.000	4.24
2	0.000	0.000	63.003	0.000	0.000	0.000	4.24
Maxima	for Member 25	5					
Load :	Shear (kN)	Maximum Ax	ial (kN)	< Be	ending Mon	ent (kN.m)	
Comb.	(Abs. Max.)(Co	ompression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (p
1	0.000	0.000	57.276	0.000	0.000	0.000	4.24
2	0.000	0.000	85.913	0.000	0.000	0.000	4.24
Maxima	for Member 2	5					
	Shear (kN)						
	(Abs. Max.)(Co						
	-2.303						
2	42.176	28.350	0.000	145.057	6.000	0.000	0.00
Maxima	for Member 2	7					
Load	Shear (kN)	Maximum Ax					
	(Abs. Max.)(Co						
1		48.600	0.000		6.000	0.000	
2	38.824	68.850	0.000	178.943	6.000	0.000	0.00

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RESULTS FOR COM						
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 4 3.000	0.000	35.894	0.000	1.0	-4.0	-0.073
0.75L 2.250	0.000	35.894	0.000	1.0	-3.1	-0.073
0.50L 1.500	0.000	35.894	0.000	1.1	-2.1	-0.073
0.25L 0.750	0.000	35.894	0.000	1.2	-1.2	-0.073
Position (m) from End 1 Jt. 4 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 2 0.000	0.000	35.894	0.000	1.2	-0.2	-0.073
Maximum +ve Ben Maximum -ve Ben	ding Moment	0.000 kN.	m at 0.000m	from	joint 2	
RESULTS FOR COM						
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deq)
Jt. 6 3.000	0.000	60.194	0.000	0.5	-6.6	-0.048
0.75L 2.250	0.000	60.194	0.000	0.6	-5.9	-0.048
0.50L 1.500	0.000	60.194	0.000	0.7	-5.3	-0.048
0.25L 0.750	0.000	60.194	0.000	0.9	-4.7	-0.048
from End 1 Jt. 6 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 4 0.000	0.000	60.194	0.000	1.0	-4.0	-0.048
Maximum +ve Ben Maximum -ve Ben						
Maximum -ve Ben	ding Moment	0.000 KN	.m at 0.000m	from	joint 4	
RESULTS FOR COM		MEMBER 3				
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(dea)
Jt. 8 3.000	0.000	68.294	0.000	0.0	-7.5	-0.018
0.75L 2.250	0.000	68.294	0.000	0.1	-7.3	-0.018
0.50L 1.500	0.000	68.294	0.000	0.3	-7.0	-0.018
0.25L 0.750	0.000	68.294	0.000	0.4	-6.8	-0.018
Position (m) from End 1 Jt. 8 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 6 0.000	0.000	68.294	0.060	0.5	-6.6	-0.018
Maximum +ve Ben Maximum -ve Ben	ding Moment	0.000 kN	mat 0.000m	from	joint 6	
RESULTS FOR COM						
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dv	dy	Slope
	10100	.m.r.r. comp.	Dema Troment	u.	u,	Prope

0.75L 2.: 0.50L 1.: 0.25L 0.:	d 1 (kN) 000 0.000 250 0.000 500 0.000 750 0.000	68 68	(kN) .294 .294 .294 .294	(kN.m) 0.000 0.000 0.000 0.000 0.000	(mm) -0.5 -0.4 -0.3 -0.1	(mm) -6.6 -6.8 -7.0 -7.3 -7.5	(deg) 0.018 0.018 0.018 0.018 0.018
	Bending Moment Bending Moment		00 kN.m at 00 kN.m at			joint 8 joint 8	

* JOB : COLT * DATE: * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * ANALYSE (C)Copyright Computer And Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 5 **Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN.m) (mm) (mm) (deg)
DATE: A N A L Y S I S R E S U L T S *SHEET: 11 ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 MEMBER 5 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
* A N A L Y S I S R E S U L T S *SHEET: 11 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 1 MEMBER 5 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
* A N A L Y S I S R E S U L T S *SHEET: 11 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 MEMBER 5 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
* ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 1 MEMBER 5 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
RESULTS FOR COMBINATION 1 MEMBER 5 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
RESULTS FOR COMBINATION 1 MEMBER 5 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
RESULTS FOR COMBINATION 1 MEMBER 5 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
from End 1 (by) (by) (by) (by) (c) (co)
from End 1 (by) (by) (by) (by) (c) (co)
(PSD) (MM) (MM) (MA) (AN) (AN)
Jt. 12 3.000 0.000 60.194 0.000 -1.0 -4.0 0.048
0.75L 2.250 0.000 60.194 0.000 -0.9 -4.7 0.048
0.50L 1.500 0.000 60.194 0.000 -0.7 -5.3 0.048
0.25L 0.750 0.000 . 60.194 0.000 -0.6 -5.9 0.048 Jt. 10 0.000 0.000 60.194 0.000 -0.5 -6.6 0.048
Jt. 10 0.000 0.000 60.194 0.000 -0.5 -6.6 0.048
Maximum +ve Bending Moment 0.000 kN.m at 0.000m from joint 10
Maximum -ve Bending Moment 0.000 kN.m at 0.000m from joint 10
RESULTS FOR COMBINATION 1 MEMBER 6
Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
from End 1 (kN) (kN) (kN.m) (mm) (mm) (deg) Jt. 14 3.000 0.000 35.894 0.000 -1.2 -0.2 0.073
Jt. 14 3.000 0.000 35.894 0.000 -1.2 -0.2 0.073 0.75L 2.250 0.000 35.894 0.000 -1.2 -1.2 0.073
0.75L 2.250 0.000 35.894 0.000 -1.2 -1.2 0.073 0.50L 1.500 0.000 35.894 0.000 -1.1 -2.1 0.073
0.50L 1.500 0.000 35.894 0.000 -1.1 -2.1 0.073 0.25L 0.750 0.000 35.894 0.000 -1.0 -3.1 0.073
0.25L 0.750 0.000 35.894 0.000 -1.0 -3.1 0.073 Jt. 12 0.000 0.000 35.894 0.000 -1.0 -4.0 0.073
Jt. 12 0.000 0.000 35.894 0.000 -1.0 -4.0 0.073
Maximum +ve Bending Moment 0.000 kN.m at 0.000m from joint 12 Maximum -ve Bending Moment 0.000 kN.m at 0.000m from joint 12
RESULTS FOR COMBINATION 1 MEMBER 7
Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope
from End 1 (kN) (kN) (kN,m) (mm) (deg)
Jt. 3 3.000 0.000 6.909 0.000 -0.9 -3.6 -0.066
0.75L 2.250 0.000 6.909 0.000 -0.9 -2.8 -0.066 0.50L 1.500 0.000 6.909 0.000 -0.9 -1.9 -0.066
0.50L 1.500 0.000 6.909 0.000 -0.9 -1.9 -0.066
U.25L U.75U U.00U 6.909 0.000 -0.9 -1.0 -0.066
Jt. 1 0.000 0.000 6.909 0.000 -0.9 -0.2 -0.066

Maximum two Bonding Mc	ment	0.000 km		0.000m	from	ioint	1	
Maximum +ve Bending Mc Maximum -ve Bending Mc	oment	0.000 ki					î	
RESULTS FOR COMBINATIO	ON 1	MEMBER 8						
	_							
Position (m) Shear from End 1		Axial Comp.	Bend.	Moment	dx		dy	Slope
Jt. 5 3.000	(kN) 0.000	(kN) -33.591		(kN.m) 0.000	(mm) -0.6	(m/		(deg) -0.052
0.75L 2.250	0.000	-33.591		0.000	-0.7			~0.052
0.50L 1.500	0.000	-33.591		0.000	-0.8		.ó	
0.25L 0.750	0.000	-33.591		0.000	-0.9			-0.052
Jt. 3 0.000	0.000	-33.591		0.006	-0.9		. 6	
						_		
Maximum +ve Bending Mc Maximum -ve Bending Mc	oment	0.000 kt	l.m at	3.000m	from	joint	3	
Maximum -ve Bending Mo	oment	0.000 ki	I.m at	0.000m	from	joint	3	
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	ON 1	MEMBED Q						
RESULTS FOR COMBINATIO	ON 1	MEMBER 9						
RESULTS FOR COMBINATIO	ON 1 Force		Bend.		dx		dv	Slope
RESULTS FOR COMBINATIO		Axial Comp.	Bend.	.Moment (kN.m)	dx (mm)		dy m)	Slope (deg)
RESULTS FOR COMBINATION Position (m) Shear	Force		Bend.	. Moment		(m		(deg)
Position (m) Shear from End 1 Jt. 7 3.000	Force (kN)	Axial Comp. (kN) -57.891	Bend.	.Moment (kN.m) 0.000	(mm)	(mi	m) .3	(deg) -0.019
Position (m) Shear from End 1 Jt. 7 3.000	Force (kN) 0.000	Axial Comp. (kN) -57.891 -57.891	Bend.	.Moment (kN.m) 0.000 0.000	(mm) 0.0 -0.1	(m ~7 ~7	m) .3 .1	(deg) ~0.019 ~0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250	Force (kN) 0.000 0.000	Axial Comp. (kN) -57.891	Bend.	.Moment (kN.m) 0.000	(mm)	(mi ~7 ~7 ~6	m) .3 .1 .8	(deg) ~0.019 ~0.019 ~0.019
RESULTS FOR COMBINATION Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500	Force (kN) 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891	Bend.	.Moment (kN.m) 0.000 0.000	(mm) 0.0 -0.1 -0.3	(m) -7 -7 -6	m) .3 .1 .8	(deg) -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750	Force (kN) 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891		.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4	(m) -7 -7 -6	m) .3 .1 .8	(deg) -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Mc	Force (kN) 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891		.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4	(m) -7 -5 -6	m) .3 .1 .8	(deg) -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750	Force (kN) 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891	i.m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6	(m -7 -7 -6 -6 -6 joint	m) .3 .1 .8 .6 .3	(deg) -0.019 -0.019 -0.019 -0.019
RESULTS FOR COMBINATION Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum -ve Bending Maximum +ve Bending Maximum +ve Bending Maximum -ve	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kt	i.m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6	(m) -7 -5 -6	m) .3 .1 .8 .6	(deg) -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Mc	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891	i.m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6	(m -7 -7 -6 -6 -6 joint	m) .3 .1 .8 .6	(deg) -0.019 -0.019 -0.019 -0.019
RESULTS FOR COMBINATION Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.55L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Mc Maximum -ve Bending Mc RESULTS FOR COMBINATION	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 0.000 kt	I.m at I.m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000m	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from	(m -7 -7 -6 -6 -6 joint	m) .3 .1 .8 .6 .3	(deg) -0.019 -0.019 -0.019 -0.019 -0.019
RESULTS FOR COMBINATION Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum +ve Bending Karimum +ve Bending Karimum +ve Bending Karimum -ve Bending Karim	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 oment oment	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 0.000 kt	I.m at I.m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 .000m	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from	(m -7 -7 -6 -6 -6 joint joint	m) .3 .1 .8 .6 .3	(deg) -0.019 -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending McMaximum +ve Bending	Force (kN) Force (kN)	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 0.000 kt 0.000 kt MEMBER 10 Axial Comp. (kN)	I.m at I.m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 3.000m	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from	(m -7 -7 -6 -6 joint joint	m) .3 .1 .8 .6 .3 5 dy m)	(deg) -0.019 -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum +ve Bending Maximum +ve Bending Maximum from End 1 Position (m) Shear from End 1 Jt. 9 3.000	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 1 1	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 0.000 kt 0.000 kt MEMBER 10 Axial Comp. (kN) -57.891	I.m at I.m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 .000m 3.000m	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from dx (mm) 0.6	(m -7 -7 -6 -6 joint joint (m -6	m) .3 .1 .8 .6 .3 5 5	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1	Force (kN) 0.000 0	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 0.000 kt 0.000 kt MEMBER 10 Axial Comp. (kN) -57.891	I.m at I.m at Bend.	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 .000m 3.000m .Moment (kN.m) 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6	(m -7 -6 -6 joint joint (m -6	m) .3 .1 .8 .6 .3 5 5 dy m) .3 .6	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum +ve Bending Maximum +ve Bending Maximum from End 1 Position (m) Shear from End 1 Jt. 9 3.000 0.75L 2.250	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 Doment DN 1 Force (kN) 0.000 0.000 0.000	Axial Comp. (kh) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kt 0.000 kt Axial Comp. (kN) -57.891 -57.991	I.m at I.m at Bend.	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 .000m 3.000m .Moment (kN.m) 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6 0.4	(mx -7 -7 -6 -6 -6 ioint joint -6 -6 -6 -6 -6	m) .3 .1 .8 .6 .3 .5 .5 dy m) .3 .6 .8	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum -ve	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 Diment DN 1 Force (kN) 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kd	I.m at I.m at Bend.	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from dx (mm) 0.6 0.4 0.3 0.4	(mx -7 -7 -7 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6	m) .3 .1 .8 .6 .3 .5 .5 dy m) .3 .6 .8 .1	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 0.019 0.019 0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum +ve Bending Maximum +ve Bending Maximum from End 1 Position (m) Shear from End 1 Jt. 9 3.000 0.75L 2.250	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 Doment DN 1 Force (kN) 0.000 0.000 0.000	Axial Comp. (kh) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kt 0.000 kt Axial Comp. (kN) -57.891 -57.991	I.m at I.m at Bend.	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 .000m 3.000m .Moment (kN.m) 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6 0.4	(mx -7 -7 -7 -6 -6 -6 joint joint	m) .3 .1 .8 .6 .3 .5 .5 dy m) .3 .6 .8 .1	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum -ve	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kt 0.000 kt 0.000 kt -57.891 -57.891 -57.891 -57.891 -57.891 -57.891	I.m at I.m at Bend	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6 0.4 0.3 0.1	(m -7 -6 -6 -6 joint joint -6 -6 -6	m) .3 .1 .8 .6 .3 .5 .5 m) .3 .4 .8 .1 .3	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 0.019 0.019 0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum -ve	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kt 0.000 kt 0.000 kt -57.891 -57.891 -57.891 -57.891 -57.891 -57.891	J.m at N.m at Bend	Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.4 (mm) 0.6 0.4 0.3 0.1	(m) -7 -6 -6 -6 joint joint	m) .3 .1 .8 .6 .3 .5 .5 m) .3 .6 .8 .1 .3 .7	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 0.019 0.019 0.019
RESULTS FOR COMBINATION Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum -ve Bending Maximum -v	Porce (kN) 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kd	I.m at Bend	.Moment (kN.m) 9 .000 0	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6 0.4 0.3 0.1 0.0	(mm -7 -7 -6 -6 -6 -6 -6 -6 -6 -6 -7 -7 joint	m) .3 .1 .8 .6 .3 .5 .5 m) .3 .4 .8 .1 .3	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 0.019 0.019 0.019
RESULTS FOR COMBINATION Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum -ve Bending Maximum -v	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 0.000 kd 0.000 kd MEMBER 10 Axial Comp57.891 -57.891 -57.891 -57.891 -57.891 -57.891 -57.891 -57.891	I.m at Bend	.Moment (kN.m) 9 .000 0	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6 0.4 0.3 0.1 0.0	(mm -7 -7 -6 -6 -6 -6 -6 -6 -6 -6 -7 -7 joint	m) .3 .1 .8 .6 .3 .5 .5 m) .3 .6 .8 .1 .3 .7	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 0.019 0.019 0.019
RESULTS FOR COMBINATION Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Maximum -ve Bending Maximum -v	Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kd	I.m at Bend	.Moment (kN.m) 9 .000 0	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6 0.4 0.3 0.1 0.0	(mm -7 -7 -6 -6 -6 -6 -6 -6 -6 -6 -7 -7 joint	m) .3 .1 .8 .6 .3 .5 .5 m) .3 .6 .8 .1 .3 .7	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019
Position (m) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 0.75L 2.25D 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 0.25L 0.750 Jt. 5 0.000 0.25L 0.750 Jt. 7 0.000 0.25L 0.750 0.50L 1.500 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 7 0.000 0.75L 0.750 Jt. 7 0.000 0.75L 0.750 0.25L 0.750 0.75L 0.75C 0.75	Porce (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kn) -57.891 -57.891 -57.891 -57.891 -57.891 0.000 kd 0.000 kd MEMBER 10 -57.891 -57.891 -57.891 -57.891 -57.891 -57.891 -57.891 -57.891 -67.891 -67.891 -67.891	F.m at Bend	.Moment (kN.m) 0.000 0.0	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6 0.4 0.3 0.1 0.0	(m -7 -7 -6 -6 -6 -6 -6 -6 -6 -7 -7 joint	m) .3 .1 .8 .6 .3 .5 .5 dy m) .3 .6 .8 .1 .7 .7	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 -0.019 0.019 0.019 0.019
POSITION (III) Shear from End 1 Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 5 0.000 Maximum +ve Bending Mc MAXIMUM -ve Bending Mc RESULTS FOR COMBINATIO FOR End 1 Jt. 9 3.000 0.75L 2.250 0.50L 1.500 0.75L 2.250 0.50L 1.500 0.75L 2.250 0.400 Maximum -ve Bending Mc RESULTS FOR COMBINATIO	Porce (kN) 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	Axial Comp. (kN) -57.891 -57.891 -57.891 -57.891 0.000 kd 0.000 kd MEMBER 10 Axial Comp57.891 -57.891 -57.891 -57.891 -57.891 -57.891 -57.891 -57.891	F.m at Bend	.Moment (kN.m) 9 .000 0	(mm) 0.0 -0.1 -0.3 -0.4 -0.6 from from 0.6 (mm) 0.6 0.4 0.3 0.1 0.0	(m -7 -7 -6 -6 -6 -6 -6 -6 -6 -7 -7 joint	m) .3 .1 .8 .6 .3 .5 .5 dy m) .3 .6 .8 .1 .3 .7 .7 dy	(deg) -0.019 -0.019 -0.019 -0.019 -0.019 -0.019

			22 501	0.000			0.052
Jt. 11 0.75L	2.250	0.000	-33.591 -33.591		0.9	-3.6 -4.3	
0.73L	1.500	0.000	-33.591		0.8	-5.0	0.052
0.25L	0.750	0.000	-33.591	0.000	0.7		
Jt. 9	0.000	4.000	-33.591	0.000	0.6	-6.3	
Maximum	+ve Ben	ding Moment	0.000 kN	.m at 0.000m .m at 3.000m	from	joint 9	
Maximum	-ve Ben	ding Moment	0.000 kN	.m at 3.000m	from	joint 9	
		BINATION 1				dy (mm) -0.2 -1.0 -1.9 -2.8 -3.6	
Posit.	ion (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
fro	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 13	m End 1 3.000	0.000	6.909	0.000	0.9	-0.2	0.066
0.75L	2.250	0.000		0.000	0.9	-1.0	0.066
0.50L 0.25L	1.500		6.909	0.000 0.000	0.9	-1.9	0.066
0.25L Jt. 11	0.750			0.000	0.9	-2.8	0.066
Jt. 11	0.000	0.000	6.909	0.000	0.9	-3.0	0.000
Mavimum	Ave Ben	ding Moment	0.000 kM	.m.at 0.000m	from	joint 11	
Maximum	-ve Ben	ding Moment	0.000 km	.m at 0.000m	from	joint 11	
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* ANAL	YSE (C)C	opvright Com	* ANALY		L T S	* DATE: *SHEET:	13
* ANAL	YSE (C)C	opyright Comp	* ANALY	gn Services Lis	L T S	* DATE: * *SHEET:	13
* ANAL RESULTS Posit	FOR COM	opyright Comp BINATION 1 Shear Force (kN)	* A N A L Y puter and Desi MEMBER 13 Axial Comp. (kN)	gn Services Lis	L T S	* DATE: * *SHEET:	13
* ANAL RESULTS Posit fro	FOR COM	opyright Comp BINATION 1 Shear Force (kN) 4.506	* A N A L Y Duter and Desi MEMBER 13 Axial Comp. (kN) 48.600	gn Services Lim Bend.Moment (kN.m) 0.000	LTS	* DATE: *- *SHEET: 1985 dy (mm)	13
* ANAL RESULTS Posit fro Jt. 2 0.75L	FOR COM ion (m) m End 1 3.000 2.250	opyright Comp BINATION 1 Shear Force (kN) 4.606 4.606	* A N A L Y outer and Desi MEMBER 13 Axial Comp. (kN) 48.600	gn Services Lim Bend.Moment (kN.m) 0.000	LTS	* DATE: *- *SHEET: 1985 dy (mm)	13
* * ANAL ======= RESULTS Posit fro Jt. 2 0.75L 0.50L	FOR COM ion (m) m End 1 3.000 2.250 1.500	Opyright Comp BINATION 1 Shear Force (kN) 4.606 4.606 4.606	* A N A L Y puter and Desi MEMBER 13 Axial Comp. (kN) 48.600 48.600 48.600	gn Services Lim Bend.Moment (kN.m) 0.000	LTS	* DATE: *- *SHEET: 1985 dy (mm)	13
* * * ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750	opyright Comp BINATION 1 Shear Force (kN) 4.606 4.606 4.606 4.606	* A N A L Y puter and Desi MEMBER 13 Axial Comp. (kN) 48.600 48.600 48.600	gn Services Lim Bend.Moment (kN.m) 0.000	LTS	* DATE: *- *SHEET: 1985 dy (mm)	13
* * ANAL ======= RESULTS Posit fro Jt. 2 0.75L 0.50L	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750	opyright Comp BINATION 1 Shear Force (kN) 4.606 4.606 4.606 4.606	* * A N A L Y outer and Desi MEMBER 13 Axial Comp. (kN) 48.600 48.600 48.600	Bend. Moment (kN.m) 0.000 -3.455 -6.909	LTS	* DATE: *SHEET: 1985 dy (swm) -0.2 -0.2	13
* ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000	opyright Comp BINATION 1 Shear Force (kN) 4.606 4.606 4.606 4.606	* A N A L Y Outer and Desi MEMBER 13 Axial Comp. (kN) 48.600 48.600 48.600	Bend.Moment (kN.m) 0.000 -3.455 -6.909 -10.364 -13.819	dx (mm) 1.2 0.6 0.0 -0.5 -0.9	* DATE: * SHEET: 1985 dy (mm) -0.2 -0.2 -0.2 -0.2 -0.2	13
* ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1 Maximum	FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 n +ve Ben	opyright Comp BINATION 1 Shear Force (kN) 4.606 4.606 4.606 4.606 4.606 ding Moment	* A N A L Y puter and Desi MEMBER 13 Axial Comp. (kN) 48.600 48.600 48.600 48.600 0.000 kt -13.819 kt	gn Services Lin Bend.Moment (kN.m) 0.000 -3.455 -6.909 -10.364 -13.819 i.m at 3.0000	dx (mm) 1.2 0.6 0.0 -0.5 -0.9	* DATE: * SHEET: 1985 dy (mm) -0.2 -0.2 -0.2 -0.2 -0.2	13
* ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1 Maximum RESULTS	YSE (C)C FOR COM ion (m) m End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ben a -ve Ben	Opyright Company of the Company of t	* A N A L Y puter and Desi MEMBER 13 Axial Comp. (kN) 48.600 48.600 48.600 0.000 kr -13.819 kr	Bend.Moment (kW.m) 0.000 -3.455 -6.909 -10.364 -13.819 i.m at 3.000s	dx (mm) 1.2 0.6 0.0 0.05 -0.9 m from	* DATE: *SHEET: 1985 dy (mm) -0.2 -0.2 -0.2 -0.2 joint 1 joint 1	Slope (deg) 89.951 89.953 89.953 89.955 89.965 89.976
* ANAL ** Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1 Maximum Maximum RESULTS	YSE (C)C FOR COM Lion (m) m End 1 3.000 2.250 0.750 0.000 a +ve Ben a -ve Ben FOR COM	opyright Company of the state o	*A N A L Y puter and Desi MEMBER 13 Axial Comp. (KN) 48.600 48.600 48.600 0.000 kt -13.819 kt MEMBER 14 Axial Comp.	Bend. Moment (kW.m) 0.000 -3.455 -6.99 -10.364 -13.819 i.m at 3.000s i.m at 0.000s	dx (mm) 1.2 0.6 0.0 0.05 -0.9 m from	* DATE: *SHEET: 1985 dy (mm) -0.2 -0.2 -0.2 -0.2 joint 1 joint 1	Slope (deg) 89.951 89.953 89.965 89.976
* ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1 Maximum RESULTS Posit fro	YSE (C)C FOR COM Sion (m) FOR COM Sion (m) FOR COM Sion End 1 FOR COM Sion (m) FOR COM Sion (m) FOR COM Sion (m) FOR COM Sion End 1	BINATION 1 Shear Force (kN) 4.066 4.006 4.006 4.006 4.006 ding Moment ding Moment Shear Force (kN)	* A N A L Y puter and Desi MEMBER 13 Axial Comp. (kN) 48.690 48.690 48.690 0.000 kt -13.819 kt MEMBER 14 Axial Comp. (kN)	Bend.Moment (kW.m) 0.000 -3.455 -6.909 -10.364 -13.819 i.m at 3.000s i.m at 0.000s Bend.Moment (kW.m)	dx (mm) 1.2 0.6 0.0 0.05 -0.9 m from	* DATE: *SHEET: 1985 dy (mm) -0.2 -0.2 -0.2 -0.2 joint 1 joint 1	Slope (deg) 89.951 89.953 89.957 89.965 89.966
* ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1 Maximum Maximum RESULTS Posit frc Jt. 4	YSE (C)C FOR COM ion (m) ion End 1 3.000 2.250 1.500 0.750 0.000 a +ve Ben 1 -ve Ben 6 FOR COM ion (m) ion End 1 3.000	opyright Community of the community of t	*A N A L Y puter and Desi MEMBER 13 Axial Comp. (KN) 48.600 48.600 49.600 0.000 kt -13.819 kt MEMBER 14 Axial Comp. (KN) 48.600 0.000 kt -13.819 kt 48.600	Bend.Moment (kM.m) 0.000 -3.455 -6.90 -10.364 -13.819 i.m at 3.000 i.m at 0.000 Bend.Moment (kM.m) 0.000	dx (mm) 1.2 0.6 0.0 -0.5 -0.9 m from dx (mm) 1.0	* DATE: *SHEET: 985 dy (amn) -0.2 -0.2 -0.2 joint 1 joint 1 dy (amn)	Slope (deg) 89.951 89.953 89.957 89.965 89.976
* ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1 Maximum	YSE (C)C FOR COM Lion (m) m End 1 3.000 2.250 1.500 0.750 0.000 n +ve Ben 1 -ve Ben 2.5 FOR COM Lion (m) m End 1 3.000 2.250	BINATION 1 Shear Force (kN) 4.806 4.806 4.806 4.606 4.606 d.ing Moment ding Moment Shear Force (kN) 0.000 0.000	** A N A L Y puter and Desi MEMBER 13 Axial Comp. (kN) 48.690 48.690 48.690 0.000 kr -13.819 kr MEMBER 14 Axial Comp. (kN) 40.590 40.590	Bend. Moment (kW.m) 0.000 -3.455 -6.909 -10.364 -13.819 i.m at 3.000s i.m at 0.000s Bend. Moment (kW.m) 0.000 0.000	dx (mm) 1.2 0.6 0.0 -0.5 -0.9 m from dx (mm) 1.0	* DATE: *SHEET: 985 dy (amn) -0.2 -0.2 -0.2 joint 1 joint 1 dy (amn)	Slope (deg) 89.951 89.953 89.956 89.965 89.966
* ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1 Maximum	YSE (C)C FOR COM Lion (m) m End 1 3.000 2.250 1.500 0.750 0.000 n +ve Ben 1 -ve Ben 2.5 FOR COM Lion (m) m End 1 3.000 2.250	opyright Commission 1 Shear Force 4.506 4.506 4.506 4.606 4.606 4.606 Moment BINATION 1 Shear Force (kW) 0.000 0.000	* A N A L Y puter and Desi MEMBER 13 Axial Comp. (KN) 48.600 48.600 48.600 0.000 kt -13.819 kt MEMBER 14 Axial Comp. (KN) 40.500 40.500	Bend.Moment (kW.m) 0.000 -3.455 -6.909 -10.364 -13.819 I.m at 3.000s I.m at 0.000s Bend.Moment (kW.m) 0.000 0.000	dx (mm) 1.2 0.6 0.0 -0.5 -0.9 m from dx (mm) 1.0	* DATE: *SHEET: 985 dy (amn) -0.2 -0.2 -0.2 joint 1 joint 1 dy (amn)	Slope (deg) 89.951 89.957 89.976 89.976 Slope (deg) 89.963 89.963 89.963 89.963
* ANAL RESULTS Posit fro Jt. 2 0.75L 0.50L 0.25L Jt. 1 Maximum	YSE (C)C FOR COM Lion (m) m End 1 3.000 2.250 0.750 0.000 a +ve Ben 1 -ve Ben 1 -ve Ben 2.250 1.500 0.250 0.750 0.000	BINATION 1 Shear Force (kN) 4.806 4.806 4.806 4.606 4.606 d.ing Moment ding Moment Shear Force (kN) 0.000 0.000	** A N A L Y puter and Desi MEMBER 13 Axial Comp. (kN) 48.690 48.690 48.690 48.690 0.000 kr -13.819 kr MEMBER 14 Axial Comp. (kN) 40.500 40.500 40.500	Bend. Moment (kW.m) 0.000 -3.455 -6.909 -10.364 -13.819 i.m at 3.000i i.m at 0.0000 Bend. Moment (kW.m) 0.000 0.000 0.000	dx (mm) 1.2 0.6 0.0 -0.5 -0.9 m from from 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	* DATE: *SHEET: 985 dy (amn) -0.2 -0.2 -0.2 joint 1 joint 1 dy (amn)	Slope (deg) 89.951 89.957 89.965 89.976 Slope (deg) 89.963 89.963 89.963 89.963

Maximum +ve Bending Moment 0.000 kN.m at 3.000m from joint 3

			0.000 kN					
		BINATION 1						
Positio	on (m)	Shear Force	Axial Comp.	Bend.	Moment	dx	dy	Slope
from	End 1	(kN)	(kN)		(kN-m)	(mm)	(mm)	(deg)
Jt. 6	3.000	0.000	24.300		0.000	0.5	-6.6	89.979
0.75L	2.250	0.000	24.300		0.000	0.2	-6.5	89.979
0.50L	1.500	0.000	24.300		0.000	0.0	-6.5	89.979
0.25L	0.750	0.000	Axial Comp. (kN) 24.300 24.300 24.300 24.300 24.300		0.000	-0.3	-6.4	89.979
Maximum -	ve Ben	ding Moment ding Moment	0.000 kn 0.000 kn	i.m at i.m at	3.000m 0.000m	from	joint 5	
		BINATION 1	MEMBER 16					
Positio	on (m)	Shear Force	Axial Comp. (kN) 16.200 16.200 16.200 16.200	Bend	Moment	dx	dy	Slope
from	End 1	(kN)	(kN)		(kN.m)	(mm)	(mm)	(deg)
Jt. 8	3.000	0.000	16.200		0.000	0.0	-7.5	90.000
0.75L	2.250	0.000	16.200		0.000	0.0	-7.5	90.000
0.50L	1.500	0.000	16.200		0.000	0.0	-7.4	90.000
0.25L	0.750	0.000	16.200		0.000	0.0	-7.4	90.000
Jt. /	0.000	0.000	16.200		0.000	0.0	-/.3	90.000
Maximum 4	ve Ben	ding Moment	0.000 kN	.m at	0.000m	from	joint 7	

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* ANALYS	SE (C)C	Copyright Comp	* A N A L Y puter and Desi	S I S	RESU:	L T S	* JOB : * DATE: *SHEET:	COLT 14
* ANALYS	SE (C)C	Copyright Comp	* A N A L Y puter and Desi	S I S	RESU:	L T S	* JOB : * DATE: *SHEET:	14
* ANALYS	SE (C)C	Copyright Comp	* A N A L Y puter and Desi	S I S	RESU:	L T S	* JOB : * DATE: *SHEET:	COLT 14
* ANALYS	SE (C)C	Copyright Comp	* A N A L Y puter and Desi	S I S	RESU:	L T S	* JOB : * DATE: *SHEET:	COLT 14
* ANALYS	SE (C)C	Copyright Comp	* A N A L Y puter and Desi	S I S	RESU:	L T S	* JOB : * DATE: *SHEET:	14
* ANALYS	SE (C)C	Copyright Comp	* A N A L Y puter and Desi	S I S	RESU:	L T S	* JOB : * DATE: *SHEET:	COLT 14
* ANALYS	SE (C)C	Copyright Comp	* * A N A L Y	S I S	RESU:	L T S	* JOB : * DATE: *SHEET:	COLT 14
* ANALYS Positic from Jt. 10 0.75L 0.50L 0.25L Jt. 9	SE (C)C FOR COM DE nd 1 3.000 2.250 1.500 0.750 0.000	Dopyright Company Comp	* A N A L Y puter and Desi *** Axial Comp. (xi) 24.300 24.300 24.300 24.300 24.300	S I S	RESU: .Woment (kN.m) 0.000 0.000 0.000 0.000	dx (mm) -0.5 -0.2 0.0 0.3	* JOB : * DATE: * SHEET: 1985 cly (mm)	Slope (deg) 90.021 90.021 90.021 90.021 90.021
* ANALYS RESULTS I Positic from Jt. 10 0.75L 0.25L Jt. 9 Maximum 4	SE (C)C FOR COM On (m) End 1 3.000 2.250 0.750 0.750 0.000 Eve Ben	Dopyright Comp BINATION 1 Shear Force 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 ding Homent	** A N A L Y puter and Desi MEMBER 17 Axial Comp. (KN) 24.300 24.300 24.300 24.300 0.000 kM	S I S gn Sen Bend	RESU:	dx (mm) -0.5 -0.2 0.0 0.3 0.6 from	* JOB : * DATE: * SHEET: 1985 dy (mm) -6.6 -6.5 -6.4 -6.3 joint 9	Slope (deg) 90.021 90.021 90.021 90.021 90.021
* ANALYS I Positic from Jt. 10 0.75L 0.25L Jt. 9 Maximum - Maximum - RESULTS I	SE (C)C FOR COM DE nd 1 3.000 2.250 0.750 0.750 0.000 EVE Ben FOR COM	DOPYTIGHT COMP BINATION 1 Shear Force (KN) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	* A N A L Y puter and Desi MEMBER 17 Axial Comp. (kN) 24.300 24.300 24.300 24.300 0.000 kN MEMBER 18	S I S gn Se	RESU: Wices Lim Moment (KN.m) 0.000 0.000 0.000 0.000 0.000 3.000m	dx (mm) -0.5 -0.2 0.0 0.3 0.6 from	* JOB: * DATE: * SHEET: 1985 dy (mm) -6.6.6.56.56.56.6.5 joint 9	Slope (deg) 90.021 90.021 90.021
* ANALYS I Positic from Jt. 10 0.75L 0.25L Jt. 9 Maximum - Maximum - RESULTS I	SE (C)C FOR COM DE nd 1 3.000 2.250 0.750 0.750 0.000 EVE Ben FOR COM	DOPYTIGHT COMP BINATION 1 Shear Force (KN) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	* A N A L Y puter and Desi MEMBER 17 Axial Comp. (kN) 24.300 24.300 24.300 24.300 0.000 kN MEMBER 18	S I S gn Se	RESU: Wices Lim Moment (KN.m) 0.000 0.000 0.000 0.000 0.000 3.000m	dx (mm) -0.5 -0.2 0.0 0.3 0.6 from	* JOB: * DATE: * SHEET: 1985 dy (mm) -6.6.6.56.56.56.6.5 joint 9	Slope (deg) 90.021 90.021 90.021
* ANALYS I Positic from Jt. 10 0.75L 0.25L Jt. 9 Maximum - Maximum - RESULTS I	SE (C)C FOR COM DE nd 1 3.000 2.250 0.750 0.750 0.000 EVE Ben FOR COM	DOPYTIGHT COMP BINATION 1 Shear Force (KN) 0.000 0.000 0.000 0.000 0.000 0.000 ding Moment ding Moment	** A N A L Y puter and Desi MEMBER 17 Axial Comp. (KN) 24.300 24.300 24.300 24.300 0.000 kM	S I S gn Se	RESU: Wices Lim Moment (KN.m) 0.000 0.000 0.000 0.000 0.000 3.000m	dx (mm) -0.5 -0.2 0.0 0.3 0.6 from	* JOB: * DATE: * SHEET: 1985 dy (mm) -6.6.6.56.56.56.6.5 joint 9	Slope (deg) 90.021 90.021 90.021

0.75L							
	2.250	0.000	40.500	0.000		-3.0	00 037
	1.500	0.000	40.500		0.0	-3.9 -3.8	90.037
0.25L	0.750	0.000	40.500	0.000	0.5		90.037
Jt. 11		0.000		0.000	0.9		90.037
					_		
Maximum	+ve Ben	ding Moment	0.000 kN.m a 0.000 kN.m a	t 0.000m	from	joint 11	
Maximum	-ve ben	aing Moment	U.UUU KM.M a	3.000m	2200	JOINE II	
RESULTS	FOR COM	BINATION 1					
			Axial Comp. Ben	d.Moment	dх	dy	Slope
from	n End 1	(kN)	(kN)	(kN.m) 0.000 3.455	(mm)	(mm)	(deg)
Jt. 14	3.000	-4.606	48.600	0.000	-1.2	-0.2	90.049
0.75L 0.50L	2.250		48.600	3.455	0.0	-0.2	90.047
	1.500 0.750		48.600 48.600	6.909	0.0	-0.2	
J. 23L	0.750	-4.606 -4.606	48.600	10.364 13.819	0.9	-0.2	
Maximum	+ve Ben	ding Moment	13.819 kN.m a 0.000 kN.m a	t 0.000m	from	joint 13	3
Maximum	-ve Ben	ding Moment	0.000 kN.m a	at 3.000m	from	joint 13	3
RESULTS	FOR COM	BINATION 1	MEMBER 20				
Posit:	ion (m)	Shear Force	Axial Comp. Ber	nd.Moment	dx	dy	Slope
fro	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 3	4.243	0.000	-57.276	0.000	-0.9	-3.6	-45.053
0.75L	3.182	0.000	-57 .276	0.000	-0.4	-2.8	-45.053
0.50L	2.121	0.000	-57.276	0.000	0.2	-1.9	-45.053
0.25L	1.061	0.000	-57.276	0.000	0.7	-1.1	-45.053
Jt. 2	0.000	0.000	(kN) -57.276 -57.276 -57.276 -57.276 -57.276	0.000	1.2	-0.2	-45.053
Maximum	tve Ben	ding Moment	0.000 kN.m	at 4.243m	from	ioint 2	
Maria	-ve Ben	ding Moment	0.000 kN.m a 0.000 kN.m a	at 0.000m	from	joint 2	
LIGY TWOM							
MAXIMUM							
MAXIMUM							
			**********			********	0 2 2 2 2 2 2 2 2 2
		マングラー ファック 日本	**************************************	**********		* JOB : (COLT
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		マングラー ファック 日本	**************************************	•************		* JOB : (COLT
***************************************			* ANALYSI	S RESUI	L T S	* JOB : (COLT
* ANAL	YSE (C)(Copyright Com	ANALYSI	S R E S U)	L T S	* JOB : (COLT 15
* ANAL	YSE (C)C	Copyright Com	* A N A L Y S I	S R E S U)	L T S	* JOB : (COLT 15
* ANAL	YSE (C)C	Copyright Com	* * A N A L Y S I puter and Design S MEMBER 21	S R E S U)	L T S	* JOB : (COLT 15
* ANAL	YSE (C)C FOR COM- ion (m) m End 1	Copyright Com	* A N A L Y S I puter and Design : MEMBER 21 Axial Comp. Be:	S R E S U)	L T S	* JOB : (15 Slope
* ANAL	YSE (C)C FOR COM- ion (m) m End 1	Copyright Com	* * * A N A L Y S I Duter and Design S MEMBER 21 Axial Comp. Ber (kN)	S R E S U)	L T S	* JOB : (COLT 15
* ANAL RESULTS fro Jt. 5	YSE (C)C FOR COMion (m) m End 1 4.243 3.182	Copyright Comp BINATION 1 Shear Force (0.000	* A N A L Y S I Duter and Design i MEMBER 21 Axial Comp. Bei (kN) -34.365	S RESUJ	dx (mm)	* JOB : (* DATE: * SHEET: 1985 dy (mm) -6.3	15 Slope (deg)
* ANAL RESULTS fro Jt. 5	YSE (C)C FOR COMion (m) m End 1 4.243 3.182	Copyright Comp BINATION 1 Shear Force (0.000	* * A N A L Y S I puter and Design S MEMBER 21 Axial Comp. Ber (kN) -34.365 -34.365	S RESUJ	dx (mm)	* JOB : (* DATE: * SHEET: 1985 dy (mm) -6.3	Slope (deg) -45.037 -45.037 -45.037
* ANAL RESULTS fro Jt. 5	YSE (C)C FOR COMion (m) m End 1 4.243 3.182	Copyright Comp BINATION 1 Shear Force (0.000	* * A N A L Y S I * Duter and Design S MEMBER 21 Axial Comp. Ber (kN) -34.365 -34.365 -34.365 -34.365	S RESUJ	dx (mm)	* JOB : (* DATE: * SHEET: 1985 dy (mm) -6.3	Slope (deg) -45.037 -45.037 -45.037 -45.037
* ANAL RESULTS fro Jt. 5	YSE (C)C FOR COM- ion (m) m End 1	Copyright Comp BINATION 1 Shear Force (0.000	* A N A L Y S I WILTER AND DESIGN I MEMBER 21 Axial Comp. Bes (kN) -34.365 -34.365 -34.365	Services Lim. Services Lim. (kN.m) 0.000 0.000	dx (mm)	* JOB : (* DATE: * SHEET: 1985 dy (mm) -6.3	Slope (deg) -45.037 -45.037 -45.037

1.061 -34.365 -34.365 Maximum +ve Bending Moment Maximum -ve Bending Moment 0.000 kN.m at 4.243m from joint 4 0.000 kN.m at 0.000m from joint 4

RESULTS	FOR COM	BINATION 1	MEMBER 22					
Dr -44	ion (m)	Shear Force	Axial Comp	. Bend.	1oment	dx	dv	Slope
POBIL.	e Pod 1	(kN)	(kN	1)	ke mi	(mm)	(mm)	(deg)
74 7	4 243	0.000	-11.45	5	0.000	0.0	-7.3	(deg) -45.012
JE. /	2 102	0.000	-11 45	<u> </u>	0.000	0.0	-7.1	-45.012
0./51	2 121	0.000	-11 45		0.000	0.1	-7.1	-45.012
0.502	1 061	0.000	711.45	-	0.000	0.3	-6.0	-45.012
7+ 6	0.000	Shear Force (kN) 0.000 0.000 0.000 0.000	-11.45	5	0.000	0.5	-6.6	-45.012
J	0.000	0.000	-21.43	-	0.000	0.5	-0.0	15.012
Maximum	+ve Ber	nding Moment nding Moment	0.000	kN.m at	4.243m	from	joint 6	
Maximum	-ve Ber	nding Moment	0.000	kN.m at	0.000m	from	joint 6	
		BINATION 1						
Posit	ion (m)	Shear Force	Avial Comm	. Rend I	Moment	4.	dv	Slope
fro	m End 1	/ FM /	comp	n Denu.	(kN m)	/mml	(mm)	(deg)
T+ 10	4.242	0 000	-11 45		0.000	-0.5	-6 6	45 012
Jt. 10 0.75L	3 182	0.000	-11 49	5	0.000	-0.3	-6.0	45 012
0.75L	3.102	0.000	-11.43		0.000	-0.4	-0.8	45.012
0.50L	2.121	0.000	-11.43	15	0.000	-0.3	-7.0	45.012
0.25L	1.061	0.000	-11.43	25	0.000	-0.1	-/-1	45.012
Jt. 7	0.000	Shear Force (kN) 0.000 0.000 0.000 0.000 0.000	-11.43	• • • • • • • • • • • • • • • • • • • •	0.000	0.0	-7.3	45.012
Maximum	+ve Ber	ding Moment	0.000	kN.m at	0.000m	from	joint 7	
Maximum	-ve Ber	nding Moment nding Moment	0.000	kN.m at	4.243m	from	joint 7	
RESULTS	FOR CON	BINATION 1						
Bonit	ion (m)	Chase Force	Avial Com	Bond	Morent	4-	4	Clone
POBIL	10H (B)	Shear roice	AXIAI COME	. pena.	noment	(x	dy	Stope
74 17	# BNG 1	(kN) 0.000 0.000 0.000	34 34	2	(KN.M)	(mm)	(10011)	(deg)
0 767	4.243	0.000	-34.30	13	0.000	-1.0	-4.0	45.037
0.755	3.182	0.000	-34.36	15	0.000	-0.6	-4.6	45.03/
0.302	2.121	0.000	~34.30	15	0.000	-0.2	-5.2	45.037
0.25L Jt. 9	1.061	0.000	-34.36	25	0.000	0.2	-5.8	45.037
Jt. 9	0.000	0.000	-34.36	13	0.000	0.6	-6.3	45.03/
Maximum	+ve Ber	nding Moment nding Moment	0.000	kN.m at	0.000m	from	joint 9	
Maximum	-ve Ben	ding Moment	0.000	kN.m at	4.243m	from	joint 9	
		*********			======			
•			* *				* JOB :	COLT
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	SE (C)C	opyright Com	outer and De	sign Serv	vices Lim	ited :		
		BINATION 1		*********				
Positi	ion (m)	Shear Force	Axial Comp (kN -57.27 -57.27	. Bend.	foment	d×	dy	Slope
from	m End 1	(kN)	(kN	1)	(kN.m)	(mm)	(mm)	(deg)
Jt. 14	4.243	0.000	-57.27	6	0.000	-1.2	-0.2	45.053
Jt. 14 0.75L	3.182	0.000	-57.27	<u>-</u>	0.000	-0.7	-0.2	45.053
	2.102	0.000	-31.21	-	0.000	-0.7	-1.1	*3.073

0.50L 2.121 0.000		
0.25L 1.061 0.000	-57.276 0.000	0.4 -2.8 45.053
Jt. 11 0.000 0.000	-57.276 0.000	0.9 -3.6 45.053
Maximum +ve Rending Momenta	- 0.000 kN.m at 0.000m 0.000 kN.m at 4.243m	from joint 11
THE TO BEILDING PROBERT	7.000 KN.M &C 4.245M	IIOM JOINE II
RESULTS FOR COMBINATION 1	MEMBER 26	
Position (m) Shear Force from End 1 (kN) Jt. 1 6.000 -2.303 0.75L 4.500 -2.303 0.50L 3.000 -2.303 Jt. 15 0.000 -2.303	Axial Comp. Bend.Moment	dx dy Slope
from End 1 (kN)	(kN) (kN.m)	(man) (max) (deg)
Jt. 1 6.000 -2.303	48.600 -13.819	-0.9 -0.2 89.976
0.75L 4.500 -2.303	48.600 -10.364	-1.2 -0.1 89.997
0.50L 3.000 -2.303	48.600 -6.909	-1.1 -0.1 90.012
0.25L 1.500 -2.303	48.600 -3.455	-0.6 0.0 90.022
Jt. 15 0.000 -2.303	48.600 0.000	0.0 0.0 90.025
Maximum +ve Bending Moment	0.000 kN.m at 0.000m -13.819 kN.m at 6.000m	from joint 15
Maximum -ve Bending Moment	-13.819 kN.m at 6.000m	from joint 15
RESULTS FOR COMBINATION 1		
Position (m) Shear Force	Axial Comp. Bend.Moment	dx dy Slope
from End 1 (kN) Jt. 13 6.000 2.303 0.75L 4.500 2.303 0.50L 3.000 2.303 0.25L 1.500 2.303	(kN) (kN.m)	(max) (max) (deg)
Jt. 13 6.000 2.303	48.600 13.819	0.9 -0.2 90.024
0.75L 4.500 2.303	48.600 10.364	1.2 -0.1 90.003
0.50L 3.000 2.303	48.600 6.909	1.1 -0.1 89.988
0.25L 1.500 2.303	48.600 3.455	0.6 0.0 89.978
Jt. 16 0.000 2.303	48.600 0.000	0.0 0.0 89.975
	13.819 kN.m at 6.000m	
Maximum -ve Bending Moment	0.000 kN.m at 0.000m	from joint 16
HAZIMUM -VE BENGING MOMENT	MOOD.U 35 M.NA 000.U	from joint 16
RESULTS FOR COMBINATION 2	MEMBER 1	
Position (m) Shear Force	Axial Comp. Bend.Moment	dx dy Slope
from End 1 (kN)	(kN) (kN.m) 77.602 0.000	(mm) (mm) (deg)
Jt. 4 3.000 0.000	77.602 0.000	72.3 -4.4 -0.081
0.75L 2.250 0.000	77.602 0.000 77.602 0.000 77.602 0.000	72.5 -3.3 -0.081
0.50L 1.500 0.000	77.602 0.000	72.6 ~2.3 ~0.001
0.25L 0.750 0.000	77.602 0.000	77 9 -1 2 -0 001
Jt. 2 0.000 0.000	77.602 0.000	72 9 -0.1 0.001
	0.000	
Maximum ave Bending Moment	0.000 by 0.000-	f 1-1-4 B
Maximum -ve Bending Moment	0.000 kN.m at 0.000m 0.000 kN.m at 0.000m	from joint 2
	U.UUU KN.M AC U.UUM	trom joint 2

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 ANALYSE (C)Copyriq 						
RESULTS FOR COMBINATION			**************	*****		- APREZEE
RESULTS FOR COMBINATI	.UN Z	MEMBER 6				
Position (m) Shear	Force	Axial Comp.	Bend. Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(Run)	(deg)
Jt. 14 3.000	0.000	-3.398 -3.398	0.000	70.4	-0.3	0.059
Jt. 14 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 12 0.000	0.000	-3.398	0.000	70.4	-1.1	0.059
0.50L 1.500	0.000	-3.398	0.000	70.4	-1.9	0.059
0.25L 0.750	0.000	-3.398	0.000	70.4	-2.7	0.059
Jt. 12 0.000	0.000	-3.398	0.000	70.4	-3.4	0.059
Maximum tve Rending b	loment	0 000 kW	m at 0 000m	from	ioint 12	
Maximum +ve Bending Naximum -ve Bending N	foment	0.000 kN	.m at 0.000m	from	joint 12	
RESULTS FOR COMBINAT	CON 2	MEMBER 7				
	_					
Position (m) Shear	Force	Axial Comp.	Bend.Moment	dx	dy	Slope
Position (m) from End 1 Jt. 3 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 1 0.000	(KN)	(KN)	(KN.m)	(mm)	(mm)	(deg)
Jt. 3 3.000	0.000	-45.528	0.000	69.5	-4.2	-0.078
0.755 2.250	0.000	-45.528	0.000	69.4	-3.1	-0.078
0.301 1.300	0.000	-45.528	0.000	69.3	-2.1	-0.078
0.23L 0.730	0.000	-45.528	0.000	69.2	-1.1	-0.078
Jt. 1 0.000	0.000	-45.528	0.000	69.0	-0.1	-0.078
Maximum +ve Bending P	4oment	0.000 kN	.m at: 0.000m	from	ioint 1	
Maximum +ve Bending & Maximum -ve Bending &	40ment	0.000 km	.m at 0.000m	from	joint 1	
RESULTS FOR COMBINAT	ION 2	MEMBER 8				
P1+1 1-1 Ch			n1 W		4	
from Pod 1	rorce	AXIAI COMP.	bend.moment	dx	ay ()	Stope
Jt. 5 3.000	0000	(KN)	(KN . M)	70.3	(1001)	(deg)
0.757 3.000	0.000	-65 770	0.000	70.2	-0.0	-0.047
0.75L 2.250 0.50L 1.500	0.000	-65 770	0.000	40.0	-6.0	-0.047
0.25L 0.750	0.000	-65.778	0.000	69 7	-4.8	-0.047
Position (m) Shear from End 1 Jt. 5 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750 Jt. 3 0.000	0.000	-65.778	0.000	69.5	-4.2	-0.047
Maximum +ve Bending H Maximum -ve Bending H	foment	0.000 km	.m at 0.000m	from	joint 3	
Maximum -ve Bending F	loment	0.000 kN	.m at 3.000m	from	joint 3	
RESULTS FOR COMBINAT	ON 2	MEMBER 9				
Position (m) Chan-		1-1-1 C	D M			01
Position (m) Shear from End 1	rorce	Axial Comp.	bend.moment	dx.	dy	Stope
1 DNA MO11	(KN)	(KN)	(KN.M)	(mm)	(mm)	(aeg)
0.757 3.000	0.000	-69.828	0.000	70.9	-7.1	-0.009
0.501. 1.500	0.000	(kN) -69.828 -69.828 -69.828	0.000	70.7	~/.0	-0.009
Jt. 7 3.000 0.75L 2.250 0.50L 1.500 0.25L 0.750	0.000	-69.828 -69.828	0.000	70.6	-6.9	-0.009
Jt. 5 0.000	0.000			70.4	-6.8	-0.009
02. 3 0.000	0.000	-09.020	7.000	2	~6.0	-0.009

Maximum +ve Bending Moment Maximum -ve Bending Moment

YA1 .

0.000 kN.m at 3.000m from joint 5 0.000 kN.m at 0.000m from joint 5

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• ANALY	SE (C)C	opvright Comp	uter and Desig	ın Ser				
								*====
RESULTS	FOR COM	BINATION 2	MEMBER 10					
Positi	on (m)	Shear Force	Axial Comp.	Bend.	Moment	dx	dy (mm) ~5.6	Slope
	End 1		(kN)		(kN.m)	(mm)	(mm)	(deg)
Jt. 9	3.000	0.000			0.000	71.2	-5.6	0.029
0.75L	2.250	0.000			0.000	71.1	-6.0	0.029
0.75L 0.50L 0.25L	1.500	0.000	-29.328 -29.328		0.000 0.000 0.000	71.1 71.1 71.0	-6.4 -6.7	0.029
D.25L	0.750	0.000	-29.328					
Jt. 7	0.000	0.000	-29.328		0.000	70.9	-7.1	0.029
Maximum	+ve Ben	ding Moment	0.000 kN 0.000 kN	.m at	0.000m	from	joint 7	
Maximum	-ve Ben	ding Moment	0.000 kN	.m at	3.000m	from	joint 7	
		BINATION 2						
Positi	ion (m)	Shear Force	Axial Comp.	Bend.	Moment.	dx	dv	Slope
	B End 1				(kN-m)	(mm)	(mm) -2.8 -3.5 -4.2	(deg)
te 11	3.000	0,000			0.000	71.1	-2.8	0.053
751	3.000 2.250	0.000	15.222 15.222		0.000	71.1	-3.5	0.053
501	1 500	0.000	15 222		0.000	71.1	-4.2	0.053
3.306	0.750	0.000	15.222		0.000	71.2	-4.9	
Jt. 9	0.000	0.000	15.222 15.222 15.222		0.000	71.2	-5.6	
						4	4-4 0	
Maximum Maximum	-ve Ber	ding Moment ding Moment	0.000 kN 0.000 kN	.m at	0.000m	from	joint 9	
		BINATION 2						
Positi	ion (m)	Shear Force	Axial Comp.	Bend	Moment	dx	dy	Slope
	a End 1							
	3.000				0.000	70.3	-0-2	0.049
0.751.	2.250	0.000			0.000	70.5	-0.9	
0 . 50T.	1.500	0.000	75.472		(KN.m) 0.000 0.000 0.000 0.000	70.7	-1.5	
0 251	1.500	0.000	75.972 75.972		0.000	70.9	-2.2	
Jt. 11	0.000				0.000	71.1	-2.8	
Maximum	tve Ber	ding Moment	0.000 kN	.m at	0.000m	from	joint 11	
Maximum	-ve Ber	nding Moment	0.000 kN 0.000 kN	.m at	0.000m	from	joint 11	
		BINATION 2	MEMBER 13					
Posit	ion (m)	Shear Force	Axial Comp.	Bend	. Moment	dx	dy	Slope
from	m End 1	(kN)	(kN)		(kN.m)	(mm)	(mm)	(deg)
Jt. 2	3.000	-57.352	28.350		0.000	72.9	-0.1	
0.75L	2.250	-57.352 -52.852 -48.352 -43.852	28.350		(kN.m) 0.000 41.327	(mm) 72.9 73.1	-0.1	
0.50L	1.500	-48.352	28.350		79.278	72.8	-0.1	89.947
0.25L	0.750	-43.852	28.350		113.855	71.6		
Jt. 1	0.000	-39.352	28.350		79.278 113.855 145.057	69.0		
•	22000	37.332	201550					

Position (m) Shear Force Axial Comp. Bend Moment	m from	joint 4 joint 4	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000 RESULTS FOR COMBINATION 2 MEMBER 3	m from	joint 4 joint 4	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000 RESULTS FOR COMBINATION 2 MEMBER 3	m from	joint 4 joint 4	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000 RESULTS FOR COMBINATION 2 MEMBER 3	m from	joint 4 joint 4	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000 RESULTS FOR COMBINATION 2 MEMBER 3	m from	joint 4 joint 4	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000 RESULTS FOR COMBINATION 2 MEMBER 3	m from	joint 4 joint 4	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000 RESULTS FOR COMBINATION 2 MEMBER 3	m from	joint 4 joint 4	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000 RESULTS FOR COMBINATION 2 MEMBER 3	m from	joint 4 joint 4	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000 RESULTS FOR COMBINATION 2 MEMBER 3	m from	joint 4 joint 4	
RESULTS FOR COMBINATION 2 MEMBER 3			
	dx (mm)	du.	
Position (m) Shear Force Axial Comp. Bend.Moment	dx (aux)	4	
" P-d 1 (but (but (but		dy	Slope
- 2m Eng 1 (KN) (KN,m)	71 7	(mm)	(aeg)
JT. 8 J.UUU U.UUU 69.502 0.000	71.2	-7.3	-0.012
0.75L 2.250 0.000 69.502 0.000	71.3	-7.1	-0.012
0.30L 1.300 0.000 69.302 0.000	71.5	-7.0	-0.012
THE 0 000 0 000 69 502 0 000	71.0	-6.7	-0.012
JC. 8 0.000 0.000 09.302 0.000	,,,,	-0.7	-0.012
Maximum +ve Bonding Moment 0.000 kN.m at 0.000	m from	ioint 6	
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000	m from	ioint 6	
RESULTS FOR COMBINATION 2 MEMBER 4			
Position (m) Shear Force Axial Comp. Bend. Moment from End (kN) (kN) (kN) (kN) Jt. 10 3.000 0.000 69.502 0.000 0.75L 2.250 0.000 69.502 0.000 0.50L 1.500 0.000 69.502 0.000 0.25L 0.750 0.000 69.502 0.000 1t. 8 0.000 69.502 0.000	dx	dy	Slope
from End 1 (kN) (kN) (kN.m)	(mm)	(mm)	(deg)
Jt. 10 3.000 0.000 69.502 0.000	70.7	-6.1	0.024
0.75L 2.250 0.000 69.502 0.000	70.8	-6.4	0.024
0.50L 1.500 0.000 69.502 0.000	70.9	-6.7	0.024
0.25L 0.750 0.000 69.502 0.000	71.1	-7.0	0.024
Jt. 8 0.000 0.000 69.502 0.000	71.2	-7.3	0.024
Maximum +ve Bending Moment 0.000 kN.m at 0.000 Maximum -ve Bending Moment 0.000 kN.m at 0.000	m from	joint 8	
Maximum -ve Bending Moment 0.000 kN.m at 0.000	m from	joint 8	
RESULTS FOR COMBINATION 2 MEMBER 5			
Position (m) Shear Force Axial Comp. Bend.Moment	dx	dv	Slope
from End 1 (kN) (kN) (kN.m)	(mm)	(mm)	(deg)
Jt. 12 3.000 0.000 41.152 0.000	70.4	-3.4	0.050
0.75L 2.250 0.000 41.152 0.000	70.4	-4.1	0.050
0.50L 1.500 0.000 41.152 0.000	70.5	-4.7	0.050
0.25L 0.750 0.000 41.152 0.000	70.6	-5.4	0.050
Position (m) Shear Force Axial Comp. Rend Moment from End 1 (km) (km) (km) (km.m) Jt. 12	70.7	-6.1	0.050
Maximum +ve Bending Moment 0.000 kN.m at 0.000 kN.m at 0.000 kN.m at 0.000	m from	ioint 1	í
TRACTION -Ve Bending Powers V.VVV KN.M 2C V.VVV	,	. ,01110 10	,

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Maximum +ve Bending Moment 145.057 kN.m at 0.000m from joint 1 Maximum -ve Bending Moment 0.000 kN.m at 3.000m from joint 1

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			in services rimi			*****
RESULTS FOR COM		MEMBER 14				
Position (m)				dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 4 3.000 0.75L 2.250	0.000	20.250	0.000	72.3	-4.4	
0.75L 2.250	0.000	20.250	0.000	71.6		89.946
0.50L 1.500 0.25L 0.750	0.000	20.250 20.250	0.000 0.000	70.9		
	0.000			70.2 69.5		
Jt. 3 0.000	0.000	20.250	0.000	69.5	-4.2	89.946
Maximum +ve Ben	ding Moment	0.000 kN	.m at 3.000m .m at 0.000m	from	joint 3	
Maximum -ve Ben	ding Moment	0.000 kM	.m at 0.000m	from	joint 3	
RESULTS FOR COM						
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from End 1	. 1	(kN)	(kN_m)	(mm)	(mm)	(deg)
It. 6 3.000	0.000	4.050	Bend.Moment (kN.m) 0.000 0.000 0.000	71.7		89.971
0.75L 2.250	0.000 0.000 0.000	4.050	0.000	71.3	-6.7	
0.50L 1.500	0.000	4.050	0.000	71.0	-6.7	89.971
0.25L 0.750 Jt. 5 0.000	0.000		0.000 0.000	70.6		
Jt. 5 0.000	0.000	4.050	0.000	70.2	-6.6	89.97
Maximum +ve Ben	ding Moment	0.000 kN	.m at 0.000m	from	joint 5	
Maximum -ve Ben			.m at 3.000m			
RESULTS FOR COM						
Position (m)	Shear Force	Axial Comp.	Bend.Moment			Slope
from End 1 Jt. 8 3.000	(kN)	(kN)	(kN-m) 0.000	(mm)		(deg)
Jt. 8 3.000	0.000	16.200	0.000	71.2		
0.751. 2.250	0.000	16.200	0.000 0.000 0.000	71.1		
0.50L 1.500 0.25L 0.750	0.000	16.200	0.000	71.1		
U.25L 0.750	0.000	16.200	0.000	71.0		
Jt. 7 0.000	0.000	16.200	0.000	70.9	-7.1	89.999
Maximum +ve Ben	ding Moment	0.000 kN	.m at 3.000m	from	joint 7 joint 7	
	erry noment	U.000 KR			JOINE /	·
RESULTS FOR COM	BINATION 2	MEMBER 17				

DATE:								
TR. 10 3.000 0.000 44.550 0.000 70.7 -6.1 90.011 0.751 2.250 0.000 44.550 0.000 70.8 -5.9 90.011 0.501 1.500 0.000 44.550 0.000 70.8 -5.9 90.011 0.5251 0.750 0.000 44.550 0.000 71.1 -5.7 90.011 0.752 0.000 0.000 44.550 0.000 71.1 -5.7 90.011 0.752 0.000 0.000 44.550 0.000 71.2 -5.6 90.011 0.000 Nn. at 0.000 from joint 9 0.000 Nn. at 0.000 from joint 10 0.000 Nn. at 0.000 from joint 10 0.000 Nn. at 0.000 from joint 11 0.000 Nn. at 0.0000 from joint 11 0.000 Nn. at 0.0000 from joint 11 0.000 Nn. at 0.0000	from	e Fed 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
1.751 2.250 0.000 44.550 0.000 70.9 -5.9 90.011 0.501 1.500 0.000 44.550 0.000 71.2 -5.8 90.011 0.251 0.750 0.000 44.550 0.000 71.2 -5.6 90.011 0.251 0.750 0.000 44.550 0.000 71.2 -5.6 90.011 0.251 0.750 0.000 44.550 0.000 71.2 -5.6 90.011 0.251 0.750 0.000 44.550 0.000 71.2 -5.6 90.011 0.251 0.750 0.000 0.000 44.550 0.000 71.2 -5.6 90.011 0.000 kN.m at 0.000m from joint 9 0.000 kN.m at 0.000m from joint 10 0.000 kN.m at 0.000 from joint 11 0.000 kN.m at 0.000 from joint 11 0.000 kN.m at 0.000m from joint 11 0.						70.7	-6.i	90.011
1.750					0.000	70.8	-5.9	90.011
1.750						70.9	-5.8	90.011
Maximum +ve Bending Moment				44 550		71 1	-5.7	90.011
#AXIMUM +VE Bending Moment				44 550	0.000	71.2		
* * JOB : COLT * * * DATE: * * * * * * * * * * * * * * * * * * *								
* * JOB : COLT * * * DATE: * * * * * * * * * * * * * * * * * * *	wari man	Ave Ben	ding Moment	0 000 kN m a	+ 0.000m	from	ioint 9	
* * JOB : COLT * * * DATE: * * * * * * * * * * * * * * * * * * *	Marimum	-ve Ben	ding Moment	0.000 kN m a	t 3.000m	from	joint 9	
* * JOB : COLT * * * DATE: * A NA LYSIS RESULTS *SEET: 21 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 2 MEMBER 18 **FOSITION (m) Shear Force Axial Comp. Bend.Homent dx dy Slope from End 1 (kN) (kN) (kN, m) (mm) (mm) (deg) 10.50L 1.500 0.000 60.750 0.000 70.4 -3.4 90.013 0.75L 2.250 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.5 -3.1 90.013 0.25L 0.750 0.000 60.750 0.000 70.7 -3.1 90.013 0.25L 0.750 0.000 60.750 0.000 70.7 -3.1 90.013 0.25L 0.750 0.000 60.750 0.000 70.7 -3.1 90.013 Meximum +ve Bending Moment 0.000 kN.m at 3.000m from joint 11 Resiluma -ve Bending Moment 0.000 kN.m at 0.000m from joint 11 Resiluma -ve Bending Moment 0.000 kN.m at 0.000m from joint 11 Comp. Combination 2 MEMBER 19 **Position (m) Shear Force Axial Comp. Bend.Homent dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (deg) 70.75L 2.250 -61.898 68.850 0.000 70.4 -0.3 90.086 0.50L 1.500 -59.648 68.850 0.000 70.4 -0.3 90.086 0.50L 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.50L 1.500 -59.648 68.850 136.739 72.2 -0.3 89.923 72.1 13 0.000 -55.148 68.850 136.739 72.2 -0.3 89.923 72.1 13 0.000 -55.148 68.850 136.739 72.2 -0.3 89.923 72.1 13 0.000 -55.148 68.850 136.739 72.2 -0.3 89.923 72.1 13 0.000 -55.148 68.850 178.943 70.3 -0.2 89.783 Meximum -ve Bending Moment 178.943 kN.m at 0.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 **RESULTS FOR COMBINATION 2 MEMBER 20 **POSITION (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (kN) (mm) (mm) (deg) 72.2 -0.3 89.923 72.3 40.000 69.5 -0.2 -0.42 -0.500 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.000 69.5 -0.42 -0.45 -0.42 -0.45 -0.42 -0.45 -0.400 69.5 -0.42 -0.45 -0.42 -0.45 -0.400 69.5 -0.42 -0.45 -0.42	MOXIMUM							
* JOB : COLT * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 2 MEMBER 18 * Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 10.50L 1.500 0.000 60.750 0.000 70.4 -3.4 90.013 0.75L 2.250 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.7 -3.1 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.1 -2.8 90.013 Maximum +ve Bending Moment 0.000 kN.m at 3.000m from joint 11 **RESULTS FOR COMBINATION 2 MEMBER 19 **Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 70.75L 2.250 -61.898 68.850 0.000 70.4 -0.3 90.086 0.50L 1.500 -59.648 68.850 47.267 71.7 -0.3 90.086 0.50L 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.50L 1.500 -59.648 68.850 136.739 72.2 -0.3 89.783 Maximum +ve Bending Moment 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COM								
* JOB : COLT * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 2 MEMBER 18 * Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 10.50L 1.500 0.000 60.750 0.000 70.4 -3.4 90.013 0.75L 2.250 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.7 -3.1 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.1 -2.8 90.013 Maximum +ve Bending Moment 0.000 kN.m at 3.000m from joint 11 **RESULTS FOR COMBINATION 2 MEMBER 19 **Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 70.75L 2.250 -61.898 68.850 0.000 70.4 -0.3 90.086 0.50L 1.500 -59.648 68.850 47.267 71.7 -0.3 90.086 0.50L 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.50L 1.500 -59.648 68.850 136.739 72.2 -0.3 89.783 Maximum +ve Bending Moment 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COM								
* JOB : COLT * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 2 MEMBER 18 * Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 10.50L 1.500 0.000 60.750 0.000 70.4 -3.4 90.013 0.75L 2.250 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.7 -3.1 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.1 -2.8 90.013 Maximum +ve Bending Moment 0.000 kN.m at 3.000m from joint 11 **RESULTS FOR COMBINATION 2 MEMBER 19 **Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 70.75L 2.250 -61.898 68.850 0.000 70.4 -0.3 90.086 0.50L 1.500 -59.648 68.850 47.267 71.7 -0.3 90.086 0.50L 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.50L 1.500 -59.648 68.850 136.739 72.2 -0.3 89.783 Maximum +ve Bending Moment 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COM								
* JOB : COLT * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 2 MEMBER 18 * Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 10.50L 1.500 0.000 60.750 0.000 70.4 -3.4 90.013 0.75L 2.250 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.7 -3.1 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.1 -2.8 90.013 Maximum +ve Bending Moment 0.000 kN.m at 3.000m from joint 11 **RESULTS FOR COMBINATION 2 MEMBER 19 **Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 70.75L 2.250 -61.898 68.850 0.000 70.4 -0.3 90.086 0.50L 1.500 -59.648 68.850 47.267 71.7 -0.3 90.086 0.50L 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.50L 1.500 -59.648 68.850 136.739 72.2 -0.3 89.783 Maximum +ve Bending Moment 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COM								
* JOB : COLT * ANALYSE (C)Copyright Computer and Design Services Limited 1985 * ANALYSE (C)Copyright Computer and Design Services Limited 1985 **RESULTS FOR COMBINATION 2 MEMBER 18 * Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 10.50L 1.500 0.000 60.750 0.000 70.4 -3.4 90.013 0.75L 2.250 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.5 -3.3 90.013 0.25L 0.750 0.000 60.750 0.000 70.7 -3.1 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.9 -3.0 90.013 0.25L 0.750 0.000 60.750 0.000 70.1 -2.8 90.013 Maximum +ve Bending Moment 0.000 kN.m at 3.000m from joint 11 **RESULTS FOR COMBINATION 2 MEMBER 19 **Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (mm) (mm) (dep) 70.75L 2.250 -61.898 68.850 0.000 70.4 -0.3 90.086 0.50L 1.500 -59.648 68.850 47.267 71.7 -0.3 90.086 0.50L 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.50L 1.500 -59.648 68.850 136.739 72.2 -0.3 89.783 Maximum +ve Bending Moment 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 19 10.000 kN.m at 3.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 178.943 kN.m at 0.000m from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COMBINATION 2 MEMBER 20 0.000 from joint 13 **RESULTS FOR COM								
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PRINTED FOR COMBINATION 2 MEMBER 19 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN-m) (mm) (deg) Jt. 14 3.00 -64.148 68.850 0.000 70.4 -0.3 90.107 0.751 2.250 -61.898 68.850 0.000 70.4 -0.3 90.107 0.751 2.250 -61.898 68.850 47.267 71.7 -0.3 90.086 0.501 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.251 0.750 -57.398 68.850 92.847 72.5 -0.3 90.923 Jt. 13 0.000 -55.148 68.850 136.739 72.2 -0.3 89.923 Jt. 13 0.000 -55.148 68.850 178.943 70.3 -0.2 89.763 Maximum +ve Bending Moment 178.943 kN.m at 0.000m from joint 13 Residuan -ve Bending Moment 0.000 kN.m at 3.000m from joint 13 PRESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN) (km) (km) (km) (deg) 1.5 3 4.243 0.000 -28.638 0.000 69.5 -4.2 -4.7 -4.2 -4.243 0.000 69.5 -4.2 -4.2 -4.2 -4.243 0.000 69.5 -4.2 -4.2 -4.2 -4.2 -4.2 -4.243 0.000 69.5 -4.2 -4.2 -4.2 -4.2 -4.2 -4.2 -4.2 -4.2								
PRINTED FOR COMBINATION 2 MEMBER 19 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN-m) (mm) (mm) (deg) Ut. 14 3.000 -64.148 68.850 0.000 70.4 -0.3 90.107 0.751 2.250 -61.898 68.850 0.000 70.4 -0.3 90.107 0.751 2.250 -61.898 68.850 47.267 71.7 -0.3 90.086 0.501 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.251 0.750 -57.398 68.850 136.739 72.2 -0.3 89.923 0.21 0.300 -55.148 68.850 178.943 70.3 -0.2 89.763 Maximum +ve Bending Moment 178.943 kN.m at 0.000m from joint 13 Residuan -ve Bending Moment 0.000 kN.m at 3.000m from joint 13 PRESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) -28.638 0.000 69.5 -42.2 -45.000 -28.638 0.000 69.5 -42.2 -45.742 -42.5 -42.2 -45.9 0.000 69.5 -42.2 -45.742 -42.5 -42.2 -45.9 0.000 69.5 -42.2 -45.742 -42.5 -42.	Maximum	+ve Ber	ding Moment	0.000 kN.m. a	at 3.000m	from	joint 11	l
PRINTED FOR COMBINATION 2 MEMBER 19 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN-m) (mm) (mm) (deg) Ut. 14 3.000 -64.148 68.850 0.000 70.4 -0.3 90.107 0.751 2.250 -61.898 68.850 0.000 70.4 -0.3 90.107 0.751 2.250 -61.898 68.850 47.267 71.7 -0.3 90.086 0.501 1.500 -59.648 68.850 92.847 72.5 -0.3 90.086 0.251 0.750 -57.398 68.850 136.739 72.2 -0.3 89.923 0.21 0.300 -55.148 68.850 178.943 70.3 -0.2 89.763 Maximum +ve Bending Moment 178.943 kN.m at 0.000m from joint 13 Residuan -ve Bending Moment 0.000 kN.m at 3.000m from joint 13 PRESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) -28.638 0.000 69.5 -42.2 -45.000 -28.638 0.000 69.5 -42.2 -45.742 -42.5 -42.2 -45.9 0.000 69.5 -42.2 -45.742 -42.5 -42.2 -45.9 0.000 69.5 -42.2 -45.742 -42.5 -42.	Maximum	-ve Ber	ding Moment	0.000 kN.m a	at 0.000m	from	joint 11	l
Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope From End (kN) (kN) (kN.m) (em) (em) (em) (fm) (de)								
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071	RESULTS	FOR COP	BINATION 2	MEMBER 19				
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071								
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071	Posit	ion (m)	Shear Force	Axial Comp. Ber	nd.Moment	dx	dy	Slope
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071	fro	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071	Jt. 14	3.000	-64.148	68.850	0.000	70.4	-0.3	90.107
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071	0.75L	2.250	-61.898	68.850	47.267	71.7	-0.3	90.086
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071	0.50L	1.500	-59.648	68.850	92.847	72.5	-0.3	90.024
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071	0.25L	0.750	-57.398	68.850	136.739	72.2	-0.3	89.923
Maximum +ve Bending Moment 178.943 kM.m at 0.000m from joint 13 Maximum -ve Bending Moment 0.000 kM.m at 3.000m from joint 13 RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kM.m) (mm) (mm) (deg) 12.3 4.243 0.000 69.5 -4.2 -45.071	Jt. 13	0.000	-55.148	68.850	178.943	70.3	-0.2	89.783
RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN:m) (mm) (mm) (deg) (7:3 4.243 0.000 -28.638 0.000 69.5 -4.2 -45.071)								
RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN:m) (mm) (mm) (deg) (7:3 4.243 0.000 -28.638 0.000 69.5 -4.2 -45.071)	Maximum	+ve Ber	ding Moment	178.943 kN.m	at 0.000m	from	joint 1	3
RESULTS FOR COMBINATION 2 MEMBER 20 Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End 1 (kN) (kN) (kN:m) (mm) (mm) (deg) (7:3 4.243 0.000 -28.638 0.000 69.5 -4.2 -45.071)	Maximum	-ve Ber	ding Moment	0.000 kN.m	at 3.000m	from	joint 13	3
Position (m) Shear Force Axial Comp. Bend.Moment dx dy Slope from End (kN) (kN) (kN) (kN) (mm) (mm) (deg) (kz. 3 4.243 0.000 -28.638 0.000 69.5 -4.2 -45.071)			. 					
Position (m) Shear Force Axial Comp. Bend. Moment dx dy Slope From End 1 (kN) (kN) (kN m) (mm) (mm) (deg) (deg) 1.5 3 4.243 0.000 -28.638 0.000 69.5 -4.2 -45.071 0.751 3.182 0.000 -28.638 0.000 70.4 -3.2 -45.071 0.501 2.121 0.000 -28.638 0.000 71.2 -2.2 -45.071 0.251 1.061 0.000 -28.638 0.000 72.1 -1.1 -45.071 0.251 0.000 -28.638 0.000 72.9 -0.1 -4.5071 0.251 0.000 0.000 -28.638 0.000 72.9 -0.1 -4.5071 0.000 0.000 0.28.638 0.0000 0.000 0.	RESULTS	FOR CO	IBINATION 2	MEMBER 20				
Position (m) Shear Force Axial Comp. Bend.Moment dx dy. Slope from End 1 Jt. 3 4.243 0.000 -28.638 0.000 69.5 -4.2-65.071 0.75L 3.182 0.000 -28.638 0.000 70.4 -3.2-45.071 0.50L 2.121 0.000 -28.638 0.000 71.2 -2.2-45.071 0.25L 1.061 0.000 -28.638 0.000 72.1 -1.4-5.071 0.25L 1.001 0.000 -28.638 0.000 72.9 -0.1-45.071								
from End 1 (kN) (kR) (kN-m) (mm) (mm) (deg) Jt. 3 4.243 0.000 -28.638 0.000 69.5 -4.2 -45.071 0.75L 3.182 0.000 -28.638 0.000 70.4 -3.2 -45.071 0.50L 2.121 0.000 -28.638 0.000 71.2 -2.2 -45.071 0.25L 1.061 0.000 -28.638 0.000 72.1 -1.1 -45.071 Jt. 2 0.000 0.000 -28.638 0.000 72.9 -0.1 -45.071	Posit	ion (m)	Shear Force	Axial Comp. Ber	nd.Moment	dx	dy	Slope
JE. 3 4.243 0.000 -28.638 0.000 69.5 -4.2 -45.071 0.75L 3.182 0.000 -28.638 0.000 70.4 -3.2 -45.071 0.50L 2.121 0.000 -28.638 0.000 71.2 -2.2 -45.071 0.25L 1.061 0.000 -28.638 0.000 72.1 -1.1 -45.071 0.5 2.000 0.000 -28.638 0.000 72.9 -0.1 -45.071				(kN)	(kN.m)	(mm)	(mm)	(deg)
0.75L 3.182 0.000 -28.638 0.000 70.4 -3.2 -45.071 0.50L 2.121 0.000 -28.638 0.000 71.2 -2.2 -45.071 0.25L 1.061 0.000 -28.638 0.000 72.1 -1.1 -45.071 Jt. 2 0.000 -28.638 0.000 72.9 -0.1 -45.071	Jt. 3	4.243	0.000	-28.638	0.000	69.5	-4.2	-45.071
0.500. 2.121 0.000 -28.638 0.000 71.2 -2.2 -45.071 0.25L 1.061 0.000 -28.638 0.000 72.1 -1.1 -45.071 Jt. 2 0.000 -28.638 0.000 72.9 -0.1 -45.071	0.751	3.182	0.000	-28.638	0.000	70.4	-3.2	-45.071
0.25L 1.061 0.000 -28.638 0.000 72.1 -1.1 -45.071 Jt. 2 0.000 0.000 -28.638 0.000 72.9 -0.1 -45.071	0.50L	2.121	0.000	-28.638	0.000	71.2	-2.2	-45.071
Jt. 2 0.000 0.000 -28.638 0.000 72.9 -0.1 -45.071	0.251	1.061	0.000	-28-638	0.000	72.1	-1.1	-45.071
	Jt. 2	0.000	0.000	-28.638	0.000	72.9	-0.1	-45-071
		0.000	0.000	-20.030	0.000		-0.1	-43.071

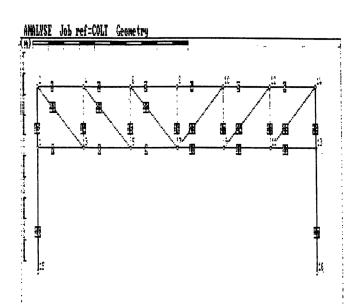
Maximum	+ve Be	nding M	ioment	0.	.000	kN.m	at	4.243m	from	ioint	2	
Maximum	-ve Be	nding M	loment	0	.000	kN.	at	4.243m 0.000m	from	joint	2	
RESULTS	FOR CO	MBINATI	ON 2	MEMBER	21							
Positi	ion (m)	Shear	Force	Axial	Comp	p. E	end	. Moment	dx (mm) 70.2 70.7		dy	Slope
from	n End 1		(kN)		(k	N)		(kN.m) 0.000 0.000	(mm)	(🗷	m)	
Jt. 5	4.243		0.000		-5.7	28 28		0.000	70.2	-6		-45.042
0.75L	2 121		0.000		-5.7	28 78		0.000	70.7	-6	٠.٢	-45.042
0.25L	1.061		0.000		-5.7			0.000	71.8	-4	.,	-45.042
0.75L 0.50L 0.25L Jt. 4	0.000		0.000					0.000	72.3	-4	.4	-45.042 -45.042 -45.042
Mawi	Aug De			•	000	1-M -		4 242-	.			
Maximum	-ve Be	nding P	oment Coment	0	.000	kN.I	a at	4.243m 0.000m	from	joint	1	
*	*****							*********		* TOB		TOT
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•				* A N	A L	YS	I S	RESU	LTS	*SHEET	۲:	22
*												
* ANALY	YSE (C)	Copyri	ht Com	puter a	nd D	esig	n Se	rvices Lim	ited	1985		
* ANALY RESULTS	YSE (C)		****	_			n Se	rvices Lim	ited	1985		*******
RESULTS	YSE (C) FOR CO	MBINAT	ION 2	MEMBER	22	n. 1	Rend	. Moment				Slope
RESULTS Positi	FOR CO	MBINAT	ION 2	MEMBER	22	n. 1	Rend	. Moment			dy un)	Slope (deg)
RESULTS Positi	FOR CO	MBINAT	ION 2	MEMBER	22	n. 1	Rend	. Moment			dy ma)	Slope (deg) -45.012
RESULTS Positi	FOR CO	MBINAT	ION 2	MEMBER	22	n. 1	Rend	. Moment			dy mn) 7.1	Slope (deg) -45.012 -45.012
RESULTS Positi from Jt. 7 0.75L 0.50L	FOR CO ion (m) m End 1 4.243 3.182 2.121	MBINAT	ION 2	MEMBER	22	n. 1	Rend	. Moment	dx (mm) 70.9 71.1 71.3	(p - 7 - 7	dy (m) (1.1	Slope (deg) -45.012 -45.012
RESULTS Positi	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061	MBINAT) Shear	ION 2	MEMBER Axial	22 Com (k 17.1 17.1 17.1	mp. 1 N) 83 83 83	Bend	.Moment (kN.m) 0.000 0.000 0.000	dx (mm) 70.9 71.1 71.3	(p - 7 - 7	dy (m) (1.1) (1.0) (1.9)	Slope (deg) -45.012 -45.012
RESULTS Position from Jt. 7 0.75L 0.50L 0.25L Jt. 6	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000	MBINAT)	Force (kn) 0.000 0.000 0.000 0.000	MEMBER Axial	22 Com (k 17.1 17.1 17.1 17.1	p. 1 N) 83 83 83 83 83	Bend	.Moment (kN.m) 0.000 0.000 0.000 0.000	dx (mm) 70.9 71.1 71.3 71.5	(# -7 -0 -0	dy 7.1 7.0 5.9 5.8	Slope (deg) -45.012 -45.012 -45.012
RESULTS Position from Jt. 7 0.75L 0.50L 0.25L Jt. 6	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000	MBINAT)	Force (kn) 0.000 0.000 0.000 0.000	MEMBER Axial	22 Com (k 17.1 17.1 17.1 17.1	p. 1 N) 83 83 83 83 83	Bend	.Moment (kN.m) 0.000 0.000 0.000 0.000	dx (mm) 70.9 71.1 71.3 71.5	(# -7 -0 -0	dy 7.1 7.0 5.9 5.8	Slope (deg) -45.012 -45.012 -45.012 -45.012
RESULTS Position from Jt. 7 0.75L 0.50L 0.25L Jt. 6	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be	MBINATI Shear	Force (kn) 0.000 0.000 0.000 0.000	MEMBER Axial	22 Com (k 17.1 17.1 17.1 17.1 17.1	P. 1 N) 83 83 83 83 83 kn.:	Bend m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000	dx (mm) 70.9 71.1 71.3 71.5 71.7	joint	dy 7.1 7.0 6.8 6.7	Slope (deg) -45.012 -45.012 -45.012 -45.012
RESULTS Posit: from Jt. 7 0.75L 0.50L 0.25L Jt. 6 Maximum Maximum RESULTS	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be -ve Be	MBINAT	Force (kN) 0.000 0.000 0.000 0.000 0.000 Moment	MEMBER Axial 0 0 MEMBER	22 Com (k 17.1 17.1 17.1 17.1 .000 .000	p. N) 83 83 83 83 83 kN.:	Bend m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m	dx (mm) 70.9 71.1 71.3 71.5 71.7	(II	dy 7.1 7.0 6.8 6.7	Slope (deg) -45.012 -45.012 -45.012 -45.012
RESULTS Posit: from Jt. 7 0.75L 0.50L 0.25L Jt. 6 Maximum Maximum RESULTS	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be -ve Be	MBINATI Shear	TON 2 Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 toment ton 2	MEMBER Axial 0 0 0 MEMBER	22 Com (k 17.1 17.1 17.1 17.1 .000 .000	p. N) 83 83 83 83 83 kn.:	Bend m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m	dx (nm) 70.9 71.1 71.3 71.5 71.7	(# 	dy 7.1 7.0 6.9 6.8 6.7	Slope (deg) -45.012 -45.012 -45.012 -45.012 Slope
RESULTS Posit: from Jt. 7 0.75L 0.50L 0.25L Jt. 6 Maximum Maximum RESULTS Posit:	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be -ve Be	MBINATI Shear nding Pading Pading Pading PadinaTi	TON 2 Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 toment ton 2	MEMBER Axial 0 0 0 MEMBER	22 Com (k 17.1 17.1 17.1 17.1 .000 .000	p. N) 83 83 83 83 83 kn.:	Bend m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m	dx (nm) 70.9 71.1 71.3 71.5 71.7	(# 	dy 7.1 7.0 6.9 6.8 6.7	Slope (deg) -45.012 -45.012 -45.012 -45.012 Slope
RESULTS Posit: from Jt. 7 0.75L 0.50L 0.25L Jt. 6 Maximum Maximum RESULTS Posit:	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be -ve Be	MBINATI Shear nding Pading Pading Pading PadinaTi	TON 2 Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 toment ton 2	MEMBER Axial 0 0 0 MEMBER	22 Com (k 17.1 17.1 17.1 17.1 .000 .000	p. N) 83 83 83 83 83 kn.:	Bend m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m	dx (nm) 70.9 71.1 71.3 71.5 71.7	(# 	dy 7.1 7.0 6.9 6.8 6.7	Slope (deg) -45.012 -45.012 -45.012 -45.012 Slope
RESULTS Posit: from Jt. 7 0.75L 0.50L 0.25L Jt. 6 Maximum Maximum RESULTS Posit:	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be -ve Be	MBINATI Shear nding Pading Pading Pading PadinaTi	TON 2 Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 toment ton 2	MEMBER Axial 0 0 0 MEMBER	22 Com (k 17.1 17.1 17.1 17.1 .000 .000	p. N) 83 83 83 83 83 kn.:	Bend m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m	dx (nm) 70.9 71.1 71.3 71.5 71.7	(II 	dy (7.1 (7.0 (6.8 (6.7 (6.8 (6.7 (6.8 (7.0) (6.8 (7.0) (6.8 (7.0) (6.8 (7.0) (6.8 (7.0) (6.8 (7.0) (6.8 (7.0) (6.8 (7.0) (6.8)	Slope (deg) -45.012 -45.012 -45.012 -45.012 Slope (deg) 45.013
RESULTS Posit: from Jt. 7 0.75L 0.50L 0.25L Jt. 6 Maximum Maximum RESULTS Posit:	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be -ve Be	MBINATI Shear nding Pading Pading Pading PadinaTi	TON 2 Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 toment ton 2	MEMBER Axial 0 0 0 MEMBER	22 Com (k 17.1 17.1 17.1 17.1 .000 .000	p. N) 83 83 83 83 83 kn.:	Bend m at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m	dx (mm) 70.9 71.1 71.3 71.5 71.7 from from 70.7 70.7 70.7	(# joint joint	dy 7.17.0 6.8 6.7 6.6 6.3 6.3	Slope (deg) -45.012 -45.012 -45.012 -45.012 Slope
RESULTS Posit: from Jt. 7 0.75L 0.50L 0.25L Jt. 6 Maximum Maximum RESULTS	FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be -ve Be	MBINATI Shear nding Pading Pading Pading PadinaTi	TON 2 Force (kN) 0.000 0.000 0.000 0.000 0.000 0.000 toment ton 2	MEMBER Axial 0 0 MEMBER Axial	22 Com (k 17.11 17.11 17.11 17.11 2000 	P. N N N N N N N N N	m at m at	.Homent (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m	dx (nm) 70.9 71.1 71.3 71.5 71.7	(# joint joint	dy 7.17.0 6.8 6.7 6.6 6.3 6.3	Slope (deg) -45.012 -45.012 -45.012 -45.012 -45.012 Slope (deg) 45.013 45.013 45.013
Posit: from Jt. 7 0.75L 0.50L 0.25L 7 0.75L 0.50L 0.25L 7 0.75L 0.50L 0.25L 7 0.50L 0.50L 0.50L 0.50L 0.75L 0.50L 0.25L Jt. 7	YSE (C) FOR CO ion (m) m End 1 4.243 3.182 2.121 0.000 +ve Be -ve Be	MBINAT	ION 2 r Force (kN) 0.000 0.000 0.000 0.000 0.000 4oment ton 2 r Force (kN) 0.000 0.000 0.000 0.000	MEMBER Axial 0 0 MEMBER Axial	22 Com k 17.1 17.1 17.1 17.1 17.1 17.1 200 23 Com k 40.0 40.0 40.0 40.0	P. 1 83 83 83 83 83 84 83 87 88 87 88 87 88 87 88 88 88 88 88 88	n at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m .Moment (kN.m) 0.000 0.000 0.000	dx (mm) 70.9 71.1 71.3 71.5 71.7 from from 70.7 70.7 70.8 70.9	joint joint	dy (mm) (7.10 (mm) (6.13 (6.66 (6.13 (6.14	Slope (deg) -45.012 -45.012 -45.012 -45.012 -45.012 Slope (deg) 45.013 45.013 45.013 45.013
Posit: from Jt. 7 0.75L 0.50L 0.25L 7 0.75L 0.50L 0.25L 7 0.75L 0.50L 0.25L 7 0.50L 0.50L 0.50L 0.50L 0.75L 0.50L 0.25L Jt. 7	YSE (C) FOR CO ion (m) m End 1 4.243 3.182 2.121 0.000 +ve Be -ve Be	MBINAT	ION 2 r Force (kN) 0.000 0.000 0.000 0.000 0.000 40ment Homent ION 2 r Force (kN) 0.000 0.000 0.000 0.000	MEMBER Axial 0 0 MEMBER Axial	22 Com k 17.1 17.1 17.1 17.1 17.1 17.1 200 23 Com k 40.0 40.0 40.0 40.0	P. 1 83 83 83 83 83 84 83 87 88 87 88 87 88 87 88 88 88 88 88 88	n at	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m .Moment (kN.m) 0.000 0.000 0.000	dx (mm) 70.9 71.1 71.3 71.5 71.7 from from 70.7 70.7 70.8 70.9	joint joint	dy (mm) (7.10 (mm) (6.13 (6.66 (6.13 (6.14	Slope (deg) -45.012 -45.012 -45.012 -45.012 -45.012 Slope (deg) 45.013 45.013 45.013 45.013
Posit: from Jt. 7 0.75L 0.50L 0.25L 7 0.75L 0.50L 0.25L 7 0.75L 0.50L 0.25L 7 0.50L 0.50L 0.50L 0.50L 0.75L 0.50L 0.25L Jt. 7	YSE (C) FOR CO ion (m) m End 1 4.243 3.182 2.121 1.061 0.000 +ve Be -ve Be -ve Be 1.061 4.243 3.182 2.121 1.061 0.000 +ve Be	MBINATI Shear nding P MBINATI Shear nding P	TON 2 Force (kn) 0.000 0.000 0.000 0.000 0.000 Moment TON 2 Force (kn) 0.000 0.000 0.000 0.000 Homent Homent	MEMBER Axial O O MEMBER Axial 0 0	22 Com (kl 17.1 17.1 17.1 17.1 17.1 17.1 17.1 17.	P. 11 83 83 83 83 83 kn.i kn.i kn.i 193 93 93 93	m at at Bend	.Moment (kN.m) 0.000 0.000 0.000 0.000 0.000 4.243m 0.000m	dx (mm) 70.9 71.3 71.5 71.7 from from (mm) 70.7 70.8 70.9	joint joint joint joint	dy (mm) (7.10 (mm) (6.13 (6.66 (6.13 (6.14	Slope (deg) -45.012 -45.012 -45.012 -45.012 -45.012 Slope (deg) 45.013 45.013 45.013 45.013

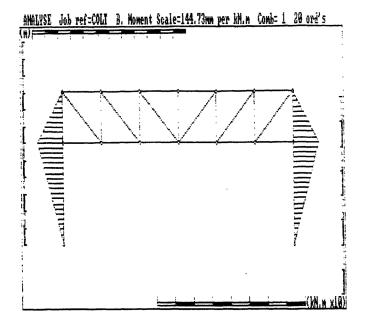
RESULTS FOR COMBINATION 2 MEMBER 24

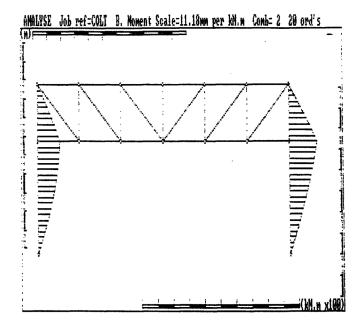
Position (m) Shear Force Axial Comp. Bend Moment dx dy Slope from End 1 (kN) (kN) (kN.m) (mm) (deg)

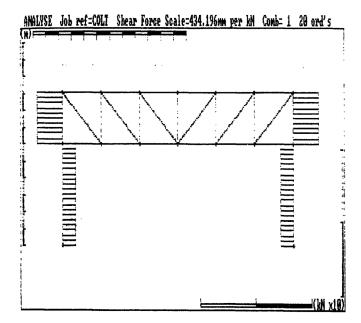
T+ 12	4.243	0.000	-63.003	0.000 0.000 0.000 0.000 0.000	70.4	-3.4	45.029
Jt. 12 0.75L 0.50L	3.182	0.000	-63.003	0.000	70.6	-4.0	45.029
0.50L	2.121	0.000	-63.003	0.000	70.8	-4.5	45.029
0.25L	1.061	0.000	-63.003	0.000	71.0	-5.1	45.029
Jt. 9	0.000	0.000	-63.003	0.000	71.2	-5.6	45.029
Maximum Maximum	+ve Ben -ve Ben	ding Moment ding Moment	0.000 km. 0.000 km.	m at 0.000m m at 4.243m	from from	joint 9 joint 9	
		BINATION 2					
Positi	on (m)	Shear Force	Axial Comp.	Bend.Moment (kN.m) 0.000 0.000 0.000 0.000	dx	dy	Slope
from	End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 14	4.243	0.000	-85.913	0.000	70.4	-0.3	45.030
0.75L	3.182	0.000	-85.913	0.000	70.6	-1.0	45.030
0.50L	2.121	0.000	-85.913	0.000	70.7	-1.6	45.030
0.25L	1.061	0.000	-85.913	0.000	70.9	-2.2	45.030
Maximum Maximum	+ve Ben -ve Ben	ding Moment ding Moment	0.000 km 0.000 km	m at 0.000m m at 4.243m	from from	joint 11 joint 11	
******		********					*******
*			*			• JOB : C	OLT
: :			•			• JOB : C	OLT
: :			*			* JOB : C	OLT
*	(SE (C)	opyright Comp	* * A N A L Y S	S I S R E S U	L T S	DATE: SHEET:	23
*	(SE (C)	opyright Comp	* ANALYS	SIS RESU	L T S	DATE: SHEET:	23
· ANALY	SE (C)C	opyright Comp	+ ANALYS	S I S R E S U	L T S	* JOB : C	23
· ANALY	SE (C)C	opyright Comp	+ ANALYS	S I S R E S U	L T S	* JOB : C	23
· ANALY	SE (C)C	opyright Comp	+ ANALYS	S I S R E S U	L T S	* JOB : C	23
· ANALY	SE (C)C	opyright Comp	+ ANALYS	S I S R E S U	L T S	* JOB : C	23
· ANALY	SE (C)C	opyright Comp	+ ANALYS	S I S R E S U	L T S	* JOB : C	23
· ANALY	SE (C)C	opyright Comp	+ ANALYS	S I S R E S U	L T S	* JOB : C	23
* ANALY * ANALY * ANALY * ANALY * ANALY * ANALY * Ositi from Jt. 1 0.75L 0.50L 0.25L Jt. 15	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000	opyright Com BINATION 2 Shear Force (KN) 6.176 15.176 24.176 33.176 42.176	* A N A L Y S * A N A L Y S * MEMBER 26 Axial Comp. (kk) 28.350 28.350 28.350 28.350 28.350	gn Services Lim gn Services Lim lend Moment (kN.m) 145.057 129.043 99.528 56.514 0.000	dx (mm) 69.0 59.1 43.3 22.9 0.0	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0	23 Slope (deg) 89.747 89.502 89.299 89.158 89.106
* ANALY * ANALY * ANALY * ANALY * ANALY * ANALY * Ositi from Jt. 1 0.75L 0.50L 0.25L Jt. 15	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000	opyright Com BINATION 2 Shear Force (KN) 6.176 15.176 24.176 33.176 42.176	* A N A L Y S * A N A L Y S * MEMBER 26 Axial Comp. (kk) 28.350 28.350 28.350 28.350 28.350	gn Services Lim gn Services Lim lend Moment (kN.m) 145.057 129.043 99.528 56.514 0.000	dx (mm) 69.0 59.1 43.3 22.9 0.0	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0	23 Slope (deg) 89.747 89.502 89.299 89.158 89.106
* ANALY * ANALY * ANALY * ANALY * ANALY * ANALY * Ositi from Jt. 1 0.75L 0.50L 0.25L Jt. 15	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000	opyright Com BINATION 2 Shear Force (KN) 6.176 15.176 24.176 33.176 42.176	* A N A L Y S * A N A L Y S * MEMBER 26 Axial Comp. (kk) 28.350 28.350 28.350 28.350 28.350	S I S R E S U	dx (mm) 69.0 59.1 43.3 22.9 0.0	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0	23 Slope (deg) 89.747 89.502 89.299 89.158 89.106
Positi Jt. 1 0.75L 0.50L 0.25L Jt. 15 Maximum ARESULTS	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000 +ve Ben FOR COM	opyright Com BINATION 2 Shear Force (kN) 6.176 15.176 24.176 42.176 ding Moment ding Moment	** A N A L Y S S I S R E S U gn Services Lim lend.Moment (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 6.000m m at 0.000m	dx (mm) 69.0 59.1 43.3 22.9 0.0 from	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0 joint 15 joint 15	Slope (deg) 89.747 89.502 89.298 89.158 89.106	
Positi Jt. 1 0.75L 0.50L 0.25L Jt. 15 Maximum ARESULTS	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000 +ve Ben FOR COM	opyright Com BINATION 2 Shear Force (kN) 6.176 15.176 24.176 42.176 ding Moment ding Moment	** A N A L Y S S I S R E S U gn Services Lim lend.Moment (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 6.000m m at 0.000m	dx (mm) 69.0 59.1 43.3 22.9 0.0 from	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0 joint 15 joint 15	Slope (deg) 89.747 89.502 89.298 89.158 89.106	
Positi Jt. 1 0.75L 0.50L 0.25L Jt. 15 Maximum ARESULTS	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000 +ve Ben FOR COM	opyright Com BINATION 2 Shear Force (kN) 6.176 15.176 24.176 42.176 ding Moment ding Moment	** A N A L Y S S I S R E S U gn Services Lim lend.Moment (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 6.000m m at 0.000m	dx (mm) 69.0 59.1 43.3 22.9 0.0 from	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0 joint 15 joint 15	Slope (deg) 89.747 89.502 89.298 89.158 89.106	
Positi Jt. 1 0.75L 0.50L 0.25L Jt. 15 Maximum ARESULTS	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000 +ve Ben FOR COM	opyright Com BINATION 2 Shear Force (kN) 6.176 15.176 24.176 42.176 ding Moment ding Moment	** A N A L Y S S I S R E S U gn Services Lim lend.Moment (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 6.000m m at 0.000m	dx (mm) 69.0 59.1 43.3 22.9 0.0 from	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0 joint 15 joint 15	Slope (deg) 89.747 89.502 89.298 89.158 89.106	
Positi Jt. 1 0.75L 0.50L 0.25L Jt. 15 Maximum ARESULTS	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000 +ve Ben FOR COM	opyright Com BINATION 2 Shear Force (kN) 6.176 15.176 24.176 42.176 ding Moment ding Moment	** A N A L Y S S I S R E S U gn Services Lim lend.Moment (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 6.000m m at 0.000m	dx (mm) 69.0 59.1 43.3 22.9 0.0 from	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0 joint 15 joint 15	Slope (deg) 89.747 89.502 89.298 89.158 89.106	
Positi Jt. 1 0.75L 0.50L 0.25L Jt. 15 Maximum ARESULTS	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000 +ve Ben FOR COM	opyright Com BINATION 2 Shear Force (kN) 6.176 15.176 24.176 42.176 ding Moment ding Moment	** A N A L Y S S I S R E S U gn Services Lim lend.Moment (kN.m) 145.057 129.043 99.528 56.514 0.000 m at 6.000m m at 0.000m	dx (mm) 69.0 59.1 43.3 22.9 0.0 from	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0 joint 15 joint 15	Slope (deg) 89.747 89.502 89.298 89.158 89.106	
Positi Jt. 1 0.75L 0.50L 0.25L Jt. 15 Maximum ARESULTS	FOR COM ion (m) a End 1 6.000 4.500 3.000 1.500 0.000 +ve Ben FOR COM	opyright Com BINATION 2 Shear Force (kN) 6.176 15.176 24.176 42.176 ding Moment ding Moment	** A N A L Y S gn Services Lim gn Services Lim lend Moment (kN.m) 145.057 129.043 99.528 56.514 0.000	dx (mm) 69.0 59.1 43.3 22.9 0.0 from	* JOB : Co * DATE: * SHEET: 1985 dy (mun) -0.1 -0.1 0.0 0.0 joint 15 joint 15	Slope (deg) 89.747 89.502 89.298 89.158 89.106	

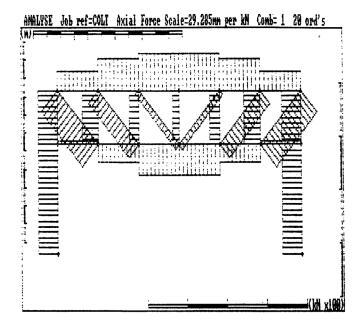
Maximum +ve Bending Moment 178.943 kN.m at 6.000m from joint 16

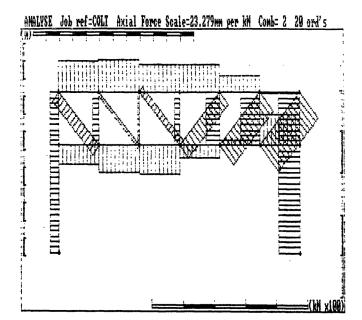




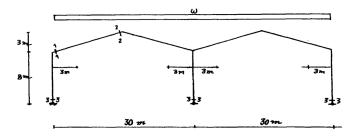


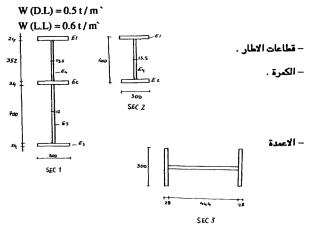






مثال: كما بالرسم اطار هيكلي حديدي (Frame) وعليه الأحمال الموضحة بالرسم





- تظهر بيانات ونتائج المنشأ كالاتي:

	****									*****	-		
	*****		===	*	****					******		* JOB :	SFRAME
		•										* DATE:	
				*									
				•		1 1	N P U 7	r	D.	ATA		*SHEET:	1
RAME	GEOME	TRY											
		TRY											
o. of	E Join												
o. of	f Join	nts = 8 End 1 Det								s			
o. of	f Join	nts = 8								sY Coord	-:-	Length	: Slope
emBei	F Join	ets = 8 End 1 Det X coord (m)	:	Y coord (m)	:Jt.	:C:	X Co	ord (m)	:	sY Coord (m)	-:-	Length (m)	: Slope
emBEI	RS L.:C:	End 1 Det X coord (m)	<u>:</u> -;	Y coord (m)	:Jt. :no.	:C:	X Co.	ord (m)	: : :	y Coord (m)	-:-	Length (m)	: Slope : (deg)
emBEI	F Join	End 1 Det X coord (m)	: 	Y coord (m) 0.000	:Jt. :no. :	:C: :-:	X Co.	ord (m) 	: :	y Coord (m) 8.000	-:-	Length (m) 8.000	: Slope : (deg) :
o. of EMBEI : em:J1 o.:no : 1: 2:	F Join	End 1 Det X coord (m) 0.000 0.000	: :	Y coord (m) 0.000	:Jt. :no. : 2 : 3	:C: : : :-: :F:	0.0	ord (m) 000	: ! !	y Coord (m)	-:-	Length (m) 8.000 15.297	: Slope : (deg) :

3: 31F: 15.000: 11.000: 5FF: 30.000: 8.000: 15.297: -11.31
4: 41F: 30.000: 0.000: 5FF: 30.000: 8.000: 8.000: 90.00
5: 5FF: 30.000: 8.000: 6FF: 45.000: 11.000: 15.297: 11.31
6: 6FF: 45.000: 11.000: 8FF: 60.000: 8.000: 15.297: -11.31
7: 7FF: 60.000: 0.000: 8FF: 60.000: 8.000: 8.000: 90.00

TABLE OF SECTIONS

Section Number				angular D (mm):		(if specified) : Y (mm)
	. (0m2,:					
1	335.52:	538318.5:		24.00:		376.00
			2:	24.00:	300.00	0.00
			3:	20.00:	300.00	-722.00
			4:	352.00:	13.50	188.00
			5:	700.00	12.00	-362.00
		:	:			
2	: 191.52:	55871.1:	1:	24.00:	300.00	: 376.00
		:	2:	24.00:	300.00	0.00
			3:	20.00:	0.00	0.00
			4:	352.00:	13.50	188.00
		:	5:	700.00:	0.00	0.00
	1:		:			
3	: 232.38:	104255.4:	1:	28.00:	300.00	: 236.00
			2:	444.00:	14.50	0.00
		:	3:	28.00:	300.00	-236.00
	11	I	1			

SUMMARY OF MEMBER PROPERTIES

Member 1 PRISMATIC : Section Number 3 : Modulus E = 210000.0 N/mm2

Member 2 NON PRISMATIC : Modulus E # 210000.0 N/mm2

Segment 1 Length = 3.000 m: End 1 Section No. = 1 : End 2 Section No. = 2

Member 3 NON PRISMATIC : Modulus E = 210000.0 N/mm2

```
Segment 1 Length = 12.297 m: End 1 Section No. = 2 : End 2 Section No. = 2 : 2 : 2 : 1
Member 4 PRISMATIC : Section Number 3 : Modulus E = 210000.0 N/mm2
Continued on Next Page )-----
                                             * JOB : SFRAME
                                             *-----
                                             *----
                         INPUT
                                  DATA
* ANALYSE (C)Copyright Computer and Design Services Limited 1985
             SUMMARY OF MEMBER PROPERTIES continued
Member 5 NON PRISMATIC : Modulus E = 210000.0 N/mm2
Segment 1 Length = 3.000 m: End 1 Section No. = 1 : End 2 Section No. = 2
'' 2 '' 12.297 m: '' 2 : '' 2
                    Member 6 NON PRISMATIC : Modulus E = 210000.0 N/mm2
Segment 1 Length = 12.297 m: End 1 Section No. = 2 : End 2 Section No. = 2
  '' 2 '' 3.000 m: '' '' 2 : '' ''
Member 7 PRISMATIC : Section Number 3 : Modulus E = 210000.0 N/mm2
************************
SUPPORTS
No. of Supports = 3
 Joint : X Restraint : Y Restraint : Angular Restraint
Number: (kN/mm): (kN/mm): (kN.m/radian)
   1 :
       FULL : FULL : ZERO
FULL : FULL : ZERO
FULL : FULL : ZERO
                         APPLIED LOADS AND MOMENTS
MEMBERS 2 - 3
LOAD CASE :LOAD: POSITION : LOAD / MOMENT
No : Name
             :Type: Start: Length: Start Value: End Value
                             -----:--:-
 1: Dead Load: UV : : : 5.000 kN/m:
2: LIVE LOAD 1: UV : : : 6.000 kN/m:
MEMBERS 5 - 6
LOAD CASE :LOAD: POSITION : LOAD / MOMENT
No : Name
              :Type: Start: Length: Start Value: End Value
1: Dead Load: UV: : : 5.000 kN/m:
3: LIVE LOAD 2: UV : : 6.000 kN/m:
```

COMBINATIONS

: TABULATED VALUES OF PARTIAL SAFETY FACTORS
L O A D C A S E : Combination Number
No : Name : 1 : 2 : 3

Dead Load:1.000:1.000:1.000 LIVE LOAD :1:1.000: :1.000 LIVE LOAD 2: :1.000:1.000 1: 2:

3:

•		JOB : SFRAME
*	**-	DATE:
:		
•	· ANALYSIS RESULTS *S	SHEET: 3
ANALYSE (C)Copyright Compu	ter and Design Services Limited 198	35
23222222222222222222222222222222222222	*********************	

RESULTS FOR COMBINATION 1

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
. 1	0.00	0.00	0.0082	87.393	162.526	0.000
2	-31.57	-0.27	-0.0046			
3	-6.61	-126.90	0.0008			
4	0.00	0.00	-0.0046	-47.285	244.948	0.000
5	18.31	-0.40	0.0023			
6	24.99	-34.65	-0.0008			
7	0.00	0.00	-0.0059	-40.108	72.526	0.000
8	31.73	-0.12	-0.0001			

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -480.000 0.000	Mo (kN.m) ~11700.000 0.000
Reactions Summation	0.000	-480.000 480.000	-11700.000 11700.000
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 2

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0059	40.108	72.526	0.000
2	-31.73	-0.12	0.0001			
3	-24.99	-34.65	0.0008			
4	0.00	0.00	0.0046	47.285	244.948	0.000
5	-18.31	-0.40	-0.0023			
6	6.61	-126.90	-0.0008			
7	0.00	0.00	-0.0082	-87.393	162.526	0.000

8 31.57 -0.27 0.0046

Summati	ion	οf	Forces	and	Momenta

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -480.000 0.000	Mo (kN.m) -17100.000 0.000
Reactions Summation	0.000	-480.000 480.000	-17100.000
Summation	0.000	0.000	17100.000

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RESULTS FOR COMBINATION 3		

Joint Displacements and Reactions

Joint No.	dx(mm)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0097	87.657	161.598	0.000
2	-43.52	-0.26	-0.0031			
3	-21.73	-111.06	0.0010			
4	0.00	0.00	0.0000	0.000	336.803	0.000
5	0.00	-0.55	0.0000			
6	21.73	-111.06	-0.0010			
7	0.00	0.00	-0.0097	-87.657	161.598	0.000
8	43.51	-0.26	0.0031			

Summation of Forces and Moments

Member Loads	Px (kN) 0.000	Py (kN) -660.000	Mo (kN.m) -19800.000
Joint Loads	0.000	0.000	0.000
Reactions	0.000	-660.000	-19800.000
Summation	0.000	660.000	19800.000
Summation	0.000	0.000	0.000

Maxima for Member 1

	Shear (kN)	Maximum Axi	ial (kN)	< B	ending Mom	ent (kN.m)	:
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m
1	-87.393	162.526	0.000	0.000	0.000	-699.147	8.00
2	-40.108	72.526	0.000	0.000	0.000	-320.866	8.00

3	-87.657	161.598	0.000	0.000	0.000	-701.259	8.000
axim	for Member	2					
oad	Shear (kN)	Maximum Ax	ial (kN) <	Ве	nding Mom	ent (kN.m)	>
	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
	142.231	117.570	0.000	257.159	13.447	-699.147	0.000
2	63.252	117.570 53.553 117.647	0.000	95.217	13.136	-320.866	0.000
xim	a for Member						
oad	Shear (kN)	Maximum Ax	ial (kN) <	Ве	nding Mom	ent (kN.m)	Pos. (m
omb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	1 391	-773.365	15.29
2	-68.104	54.523	0.000	87.279	1.132	-395.082	15.29
3	-147.940	118.541 54.523 118.981	0.000	231.320	1.310	-803.307	15.29
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	ALYSE (C)Cop	yright Comput	ANALY	S I S R E	S U L T	* JOB : S * DATE: * S *SHEET:	SFRAME 5
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AN	ALYSE (C)Cop	yright Comput	ANALY er and Des	SIS RE	S S U L T	* JOB : \$ * DATE: * SHEET: 1 1985	5
AN	ALYSE (C)Cop a for Member Shear (N)	yright Comput 4 Maximum Ax (Compression)	A N A L Y	S I S R E	S S U L T	* JOB : S * DATE: * DATE: S *SHEET: I 1985 ment (kN.m) Maxve	SFRAME 5 Pos. (m
AN	ALYSE (C)Cop a for Member Shear (N)	yright Comput 4 Maximum Ax (Compression)	A N A L Y	S I S R E	S S U L T	* JOB : S * DATE: * DATE: S *SHEET: I 1985 ment (kN.m) Maxve	SFRAME 5 Pos. (m
AN Maxim	ALYSE (C)Cop a for Member Shear (N)	yright Comput 4 Maximum Ax (Compression)	A N A L Y	S I S R E	S S U L T	* JOB : S * DATE: * DATE: S *SHEET: I 1985 ment (kN.m) Maxve	SFRAME 5 Pos. (m
AN laxim	ALYSE (C)Cop a for Member Shear (kN) (Abs. Max.) 47.285 -47.285	yright Comput 4 Maximum Ax	A N A L Y er and Des: (ial (kN) (Tension) 0.000 0.000 0.000	S I S R E	S S U L T	* JOB : S * DATE: * DATE: S *SHEET: I 1985 ment (kN.m) Maxve	SFRAME 5 Pos. (m
AN laxim	ALYSE (C)Cop a for Member Shear (kN) (Abs. Max.) 47.285 -47.285	yright Comput 4 Maximum Ax (Compression) 244.948 244.948 336.803	A N A L Y er and Des: (ial (kN) (Tension) 0.000 0.000 0.000	S I S R E	S S U L T	* JOB : S * DATE: * DATE: S *SHEET: I 1985 ment (kN.m) Maxve	SFRAME 5 Pos. (m
AN Load Comb.	ALYSE (C)Cop a for Member Shear (kN) (Abs. Max.) 47.285 -47.285 0.000 a for Member Shear (kN)	yright Comput 4 Maximum Ax (Compression) 244.948 244.948 336.803 5 Maximum Ax	A N A L Y er and Des: (Tension) (0.000 0.000 0.000	S I S R E ign Service	ending Mom Pos. (m) 8.000 0.000 8.000	* JOB: S * DATE: * DATE: S *SHEET: 1985 Maxve 0.000 -378.282 0.000	Pos. (m 0.00 8.00
AN Axim	ALYSE (C)Cop a for Member Shear (kn) (Abs. Max.) 47.285 -47.285 0.000 a for Hember Shear (kn) (Abs. Max.)	yright Comput Haximum Ax (Compression) 244.948 336.803 5 Haximum Ax (Compression)	a N A L Y er and Des: ial (kN) (Tension) 0.000 0.000 0.000	S I S R E	S S U L T S Limited Pos. (m) 8.000 0.000 8.000 ending Mon Pos. (m)	* JOB: 5 * DATE: * S * SHEET: 1 1985 ment (kN.m) Maxve 0.000 -378.282 0.000 ment (kN.m) Maxve	5 Pos. (m 0.00 8.00 0.00 Pos. (m pos.
AN Load Comb.	ALYSE (C)Cop a for Member Shear (kN) (Abs. Max.) 47.285 -47.285 0.000 a for Member Shear (kN) (Abs. Max.) 68.104	yright Comput 4 Maximum Ax (Compression) 244.948 336.803 5 Maximum Ax (Compression) 54.523	A N A L Y er and Des: (ial (kN) ((Tension) 0.000 0.000 (ial (kN) ((Tension) 0.000	S I S R E ign Service Max.+ve 378.282 0.000 0.000	ESULT SS Limited Pos. (m) 8.000 8.000 8.000 ending Mon Pos. (m) 14.166	* JOB: 5 * DATE: * DATE: S *SHEET: 1985 ment (kN.m) Maxve 0.000 -378.282 0.000 ment (kN.m) Maxve -395.083	Pos. (m 0.00 0.00 0.00
AN Load Comb.	ALYSE (C)Cop a for Member Shear (kN) (Abs. Max.) 47.285 -47.285 0.000 a for Member Shear (kN) (Abs. Max.) 68.104	yright Comput Haximum Ax (Compression) 244.948 336.803 5 Haximum Ax (Compression)	A N A L Y er and Des: (ial (kN) ((Tension) 0.000 0.000 (ial (kN) ((Tension) 0.000	S I S R E ign Service Max.+ve 378.282 0.000 0.000	ESULT SS Limited Pos. (m) 8.000 8.000 8.000 ending Mon Pos. (m) 14.166	* JOB: 5 * DATE: * DATE: S *SHEET: 1985 ment (kN.m) Maxve 0.000 -378.282 0.000 ment (kN.m) Maxve -395.083	Pos. (m 0.00 0.00

Maxima for Member 7

Load Shear (kN) Maximum Axial (kN) <------ Bending Moment (kN.m) ------
Comb. (Abs. Max.)(Compression) (Tension) Max.+ve Pos. (m) Max.-ve Pos. (m)

1 -63.252 53.553 0.000 95.217 2.141 -220.865 15.29*

2 -142.231 117.570 0.000 257.159 1.850 -699.148 15.29*

3 -141.269 117.647 0.000 242.163 1.941 -701.259 15.29*

Load Shear (kN)					>
Comb. (Abs. Max.)(Co	ompression) (Ten	sion) Max.+ve	Pos. (m) Ma	axve	Pos. (m)
1 40.108	72.526 0	.000 320.86		0.000	0.000
2 87.393	162.526 0	.000 699.14	8 8.000	0.000	0.000
3 87.657	161.598 0	.000 701.25	9 8.000	0.000	0.000
RESULTS FOR COMBINA	TION 1 MEMBER	1			
Position (m) She	ar Force Axial	Comp. Bend.Mor	ment dx	dy	Slope
from End 1	(kN)	(kN) (k	N.m) (mm)	(man)	(deg)
Jt. 2 8.000	-87.393 16	2.526 -699		-0.3	89.738
0.75L 6.000	-87.393 16	2.526 -524	.361 -34.9	-0.2	90.058
0.50L 4.000	-87.393 16	2.526 -349	.574 -28.6	-0.1	90.287
0.25L 2.000	-87.393 16	2.526 -174	.787 -15.9	-0.1	90.424
Jt. 1 0.000	-87.393 16	2.526 0	.000 0.0	0.0	90.470
Maximum +ve Bending Maximum -ve Bending		000 kN.m at 147 kN.m at	0.000m from 8.000m from		

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*****		***********	MEMBER 2	gn Services L	TWICEG .	1903	
Posi	ion (m)	Shear Force	Axial Comp.				
TA IT	m Eng 1	(kN)	(KN)	(kN.m) 239.064	(mm)	(mm)	(deg
				239.064			
0.735	7 640	40.004	93.301	79.333	-9.0	-74.6	
0.351	3 824	101.782		-232.563			
		142.231					
Maximu	+ve Ben	ding Moment	257.159 kN	l.m at 13.44	7m from	joint 2	
Maximu	a -ve Ben	ding Moment	-699.147 kM	I.m at 0.00	Om from	joint 2	
RESULT	FOR COM	BINATION 1	MEMBER 3				
				Bend.Moment			Slo
fre	on End I	(kN)	(kN)	(kN.m)	(mm)	(mm)	(dec
Jt. 5	15.297	-147.082	118.541	-773.365	18.3	-0.4	-11.17
		-106.633	110.451	-288.227	14.6		-10.79

0.50L 7.649 0.25L 3.824	-66.185 -25.736	102.361 94.271 86.181	42.224 217.988	5.4 -3.1	-66.1 -109.1	-10.548 -10.815
Jt. 3 0.000	14.713	86.181	239.064	-6.6	-126.9	-11.266
Maximum +ve Be Maximum -ve Be	nding Moment nding Moment	249.297 kN.m ~773.365 kN.m	at 1.391m at 15.297m	from from	joint 3 joint 3	
RESULTS FOR CO			***			
Position (m)	Shear Force	Axial Comp. B	end.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 5 8.000	47.285	244.948	378.282	18.3	-0.4	90.133
0.75L 6.000	47.285	244.948	283.712	19.8	-0.3	89.960
0.50L 4.000	47.285	244.948	189.141	16.1	-0.2	89.836
0.25L 2.000	47.285	244-948	94.571	8.9	-0.1	89.762
Jt. 4 0.000	47.285	Axial Comp. B (kN) 244.948 244.948 244.948 244.948 244.948	0.000	0.0	0.0	89.737
		378.282 kN.m 0.000 kN.m				
MAXIMUM -VE DE	naing moment	U.000 KN.A	. ac 0.000m	r r Ott	JOING 4	
RESULTS FOR CO						
Position (m)	Shear Force	Axial Comp. B	end.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 6 15.297	-5.440	39.814	84.202	25.0	-34.6	11.266
0.75L 11.473	12.946	43.492	69.849	23.4	-26.6	11.112
0.50L 7.649	31.332	47.169	-14.816	20.3	-10.7	11.049
0.25L 3.824	49.718	50.846	-169.793	17.7	2.7	11.211
Jt. 5 0.000	68.104	Axial Comp. B (kN) 39.814 43.492 47.169 50.846 54.523	-395.083	18.3	-0.4	11.443
Maximum -ve Be	nding Moment	87.279 kN.π -395.083 kN.π	at 14.100m	from	joint 5	
		4 2 2 4 3 8 8 8 9 0 7 2 4 2 8 8 8		- 7 to a	*******	P 有民 者 因因恶恶害
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RESULTS FOR CO						

Position (m) Shear Force Axial Comp. Bend. Homent from End 1 (kN) (kH) (kN.m)

Jt. 8 15.297 -63.252 dy Slope (mm) (deg) -0.1 -11.313 -4.2 -11.142 (mm) 31.7 dx (kN.m) -320.865 53.553 49.876 0.75L 11.473 -44.866 -114.130 30.9 28.0 25.5 25.0 0.50L 7.649 3.824 -26.480 -8.094 -19.1 -11.067 -31.9 -11.181 46.198 22.293 0.25L 42.521 38.844 88.404 0.000 10.292 84.202 -34.6 -11.353 Maximum +ve Bending Moment95.217 kN.m at2.141m from joint6Maximum -ve Bending Moment-320.865 kN.m at15.297m from joint6

RESULTS FOR COMBINATION 1	ı	MEMBER	-7
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Jt. 8 0.75L 0.50L 0.25L	8.0 8.0 6.0 4.0 2.0	1 1 100 100 100	(kN) 40.108 40.108 40.108	72.5 72.5 72.5 72.5	Ň)	(kN 320. 240. 160. 80.	ent (-m) 865 649 433 216		(m -0 -0 -0	dy m) .1 .1 .0	89.745	
		Bending Bending		320.865		at at			joint joint			
						at .=====		I I FOR				
RESULTS	FOR	COMBINA:	rion 2	MEMBER 1								
Posit	ion (m) She	ar Force	Axial Con	ap. Be	end . Mor	ment	dx		dy	Slope	
from			(kN		(N)	(ki	(.m)	(man)	(m	m)	(deg)	
Jt. 2	8.0		-40.10			-320		-31.7		. 1	90.003	
0.75L	6.0		-40.10		526			-28.9		. 1	90.150	
0.50L	4.0	000	-40.10		526			-21.7		. 1		
	2.0		-40.10		526			-11.6		.0		
Jt. 1	0.6	000	-40.10	72.5	526	0.	.000	0.0	0	.0	90.339	
Maximum	+ve	Bending	Moment	0.000 -320.866	kN.m	at	0.000m	n from	joint	1		
Maximum	-ve	Bending	Moment	-320.866	kN.m	at	8.000	a from	joint	1		
RESULTS	FOR	COMBINA	TION 2	MEMBER 2								
Posit	ion (m) She	ar Porce	Axial Com	Δр. В	end . Mos	ment	dx		dy	Slope	
	Enc		(kN		(N)	(k)	(m)	(mm)	(m	m)	(deg)	
Jt. 3			-10.29					-25.0	-34	. 6	11.353	
0.75L			8.09					-25.5		. 9	11.181	
0.50L	7.0	49	26.48		199			-28.0				
	3.1		44.86		376	-114		-30.9				
Jt. 2	0.0	000	63.25	53.5	53	-320	. 866	-31.7	-0	. 1	11.313	
Maximum Maximum	+ve -ve	Bending Bending	Moment Moment	95.217 -320.866					joint joint			
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	tion (m) om End 1	Shear Force (kN)	Axial Comp. (kN)	Bend. Moment (kN.m)	dx (mm)	dy Slope
Jt. 5	15.297	-68.104	54.523	-395.082	-18.3	-0.4 -11.443
0.75L	11.473	-49.718	50.846	-169.792	-17.7	2.7 -11.211
0 - 50t.	7.649	-31.332	47 169	-14 915	-20.3	-10 7 -11 040

0.25L	3.824	-12.946	43.492	69.849 84.201	-23.4	-26.6	-11.112
Jt. 3	0.000	5.440	39.815	84.201	-25.0	-34.6	-11.266
		44 W	07 270 %		22m from	ioint 3	
Maximum	+ve Ben	ding Moment	87.279 KI	N.m at 1.1: N.m at 15.2:	32m from	joint 3	
Maximum	-ve sen	ding Moment	-393.082 K	N.M &C 13.2:	y/M 220M	JOINE 5	
RESULTS	FOR COM	BINATION 2	MEMBER 4				
Posit:	ion (m)	Shear Force	Axial Comp.	Bend.Moment (kN.m) -378.282 -283.712 -189.141 -94.571 0.000	dx	dy	Slope
fro	n End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg
Jt. 5	8.000	-47.285	244.948	-378.282	-18.3	-0.4	89.86
0.75L	. 6.000	-47.285	244.948	-283.712	-19.8	-0.3	90.040
0.50L	4.000	-47.285	244.948	-189.141	-16.1	-0.2	90-164
0.25L	2.000	-47.285	244.948	-94.571	-8.9	-0.1	90.238
Jt. 4	0.000	-47.285	244.948	0.000	0.0	0.0	90.26
Mavimum	tue Ber	ding Moment	0.000 k	N.m at 0.0 N.m at 8.0	00m from	ioint 4	
Marimum	-ve Ber	ding Moment	-378.282 k	N.m at 8.0	00m from	joint 4	
RESULTS	FOR COM	IBINATION 2	MEMBER 5				
Posit	ion (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
fro	m End i	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg
Jt. 6	15.297	-14.713	86.182	239.064	6.6	-126.9	11.26
0.75L	11.473	25.736	94.271	217.988	3.1	-109.1	10.81
0.50L	7.649	66.184	102.361	42.225	-5.4	-66.1	10.54
0.25L	3.824	106.633	110.451	-288.226	-14.6	-19.6	10.75
Jt. 5	0.000	147.082	118.541	Bend.Moment (kN.m) 239.064 217.988 42.225 -288.226 -773.364	-18.3	-0.4	11.17
Maria	Ave Ber	nding Moment	249.297 k	N.m.at 13.9	06m from	ioint 5	
Marinum	-ve Ber	ding Moment	-773.364 k	N.m at 13.9 N.m at 0.0	00m from	joint 5	
RESULTS	FOR CO	ABINATION 2	MEMBER 6				
Posit	ion (m)	Shear Force	Axial Comp.	Bend Moment (kN.m) -699.148 -232.564 79.333 236.542 239.064	dx	dy	Slop
fro	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg
Jt. 8	15.297	-142.231	117.570	-699.148	31.6	-0.3	-11.04
0.75L	11.473	-101.782	109.481	-232.564	26.4	-26.6	-10.68
0.50L	7.649	-61.333	101.391	79.333	16.9	-74.6	-10.56
0.25L	3.824	-20.884	93.301	236.542	9.0	-114.4	-10.88
.T+ . 6	0.000	19.565	85.211	239.064	6.6	-126.9	-11.35
		nding Moment	257.159 k	N.mat 1.8	SUM IFOM	JOINE 9	

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RESULTS FOR COMBINATION 2 MEMBER 7

Position (m) from End 1 Jt. 8 8.000 0.75L 6.000 0.50L 4.000 0.25L 2.000 Jt. 7 0.000	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 8 8.000	87.393	162.526	699.148	31.6	-0.3	90.262
0.75L 6.000	87.393	162.526	524.361	34.9	-0.2	89.942
0.50L 4.000	87.393	162.526	349.574	28.6	-0.1	89.713
0.25L 2.000	87.393	162.526	174.787	15.9	-0.1	89.576
Jt. 7 0.000	87.393	162.526	0.000	0.0	0.0	89.530
Maximum +ve Ber Maximum -ve Ber	nding Moment	699.148 kN	.m. at 8.000	m from	joint 7	
Maximum -ve Ber	nding Moment	0.000 kN	.mat 0.000	m from	joint 7	
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RESULTS FOR CO	ABINATION 3	MEMBER 1				
Parisian (-)	ah B		n v			61
Position (m)	Shear Force	Axial Comp.	Bend.Moment	(X	ay	Stope
TEOM ENG I	(KN)	161 600	-701 759	(mm)	-0.3	(ueg)
35. 2 6.000	-07.037	161.396	-701.239	-43.3	-0.3	09.022
0.75L 6.000	-87.657	101.398	-525.944	-43.8	-0.2	90.143
0.30L 4.000	-87.657	101.398	-350.630	-34.0	-0.1	90.3/3
U.25L 2.000	-87.657	101-340	-1/3.313	-18.9	~0.1	90.510
Position (m) from End 1 Jt. 2 8.000 0.75L 6.000 0.50L 4.000 0.25L 2.000 Jt. 1 0.000	-87-657	101.398	0.000	0.0	0.0	90.556
Marimum Ave Ber	ding Moment	0 000 FM	m at 0.00	Om from	ioint 1	
Maximum +ve Ber Maximum -ve Ber	ding Moment	_701 259 kN	mat 8.00	OR From	joint 1	
MAXIMUM -VE BEI						
RESULTS FOR CO	ABINATION 3	MEMBER 2				
Position (m) from End 1 Jt. 3 15.297 0.75L 11.473 0.50L 7.649 0.25L 3.824 Jt. 2 0.000	Chan- B	Aurial Comm	Band Manage	4	4	61
POSICION (M)	Shear rorce	AXIAI COMP.	beno.moment	(\	- dy	Stope
TEOM End 1	(KN)	0E 200	(KN.M)	(1117)	(mm)	(aeg)
JE. J 15.297	-20.527	03.200	222.243	-21.7	-111.1	10.020
0.756 11.475	60 371	101 460	60 060	-20.0	-64.4	10.530
0.301 7.649	100.371	101.400	220 252	-30.9	-04.4	10.032
Th 2 0 000	141 269	117 647	-238.332	-39.4	-21.2	11 133
30. 2 0.000	141.209	117.047	-/01.233	-43.3	-0.3	11.132
Marinum tve Re	nding Moment	242 163 kN	m at 13.35	6m from	igint 2	
Maximum +ve Ber Maximum -ve Ber	nding Moment	-701 259 kM	m at 0.00	Om from	joint 2	
RESULTS FOR CO	MBINATION 3	MEMBER 3				
Position (m) from End 1 Jt. 5 15.297 0.75L 11.473 0.50L 7.649 0.25L 3.824 Jt. 3 0.000	Chear Force	Awinl Comp	Bond Noment	4	4	61000
from End 1	Silear Force	uvrar comb.	/kM =	(mm)	- ay	arobe
T+ 5 15 207	-147 940	119 001	_RA3_207	(1000.)	(mm)	(ueg)
0 751 11 477	-147.540	110.981	-314 999	0.0	-0.6	-11.310
0.750 7.640	-67.0431	100.092	-314.088	10.3	-11./	-10.607
0.301 7.043	-07.04Z	04 712	10.044	-10.3	-52.8	-10.60/
1+ 3 0 000	12 055	94.712	227.000	-10.3	-93.2	-10.834
JE. J 0.000	13.633	00.022	222.243	-21./	~111.1	-11.250
Maximum +ve Ber	nding Moment	231.320 kN	.m.at. 1.31	Om from	ioint 3	
Maximum +ve Ber Maximum -ve Ber	nding Moment	-803.307 kN	mat 15.29	7m from	joint 3	
					JOZC J	

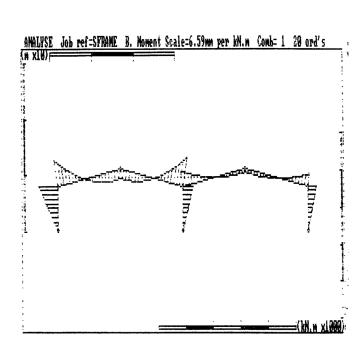
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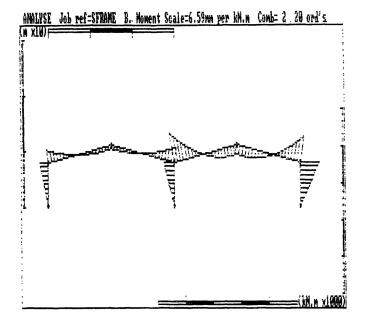
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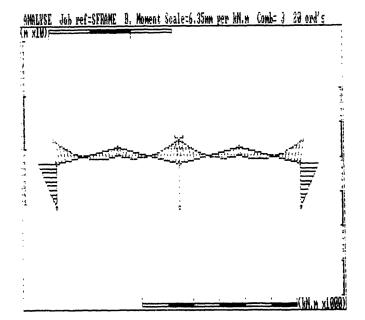
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RESULTS	FOR COM	BINATION 3	MEMBER 4					
_								-1
Posit	ion (m)	Shear Force	Axial Com	p. Bend.	Moment	ax	dy	Stope
fro	n End 1	(kN)	(k)	N)	(kN.m)	(mm)	(mm)	(aeg
Jt. 5	8.000	0.000	336.8	03	0.000	0.0	-0.6	90.000
0.75L	6.000	0.000	336.8	03	0.000	0.0	-0.4	90.00
0.50L	4.000	0.000	336.8	03	0.000	0.0	-0.3	90.00
0.25L	2.000	0.000	336.8	03	0.000	0.0	-0.1	90.00
Jt. 4	0.000	Shear Force (kN) 0.000 0.000 0.000 0.000	336.8	03	0.000	0.0	0.0	90.00
Maximum	-ve Ber	ding Moment ding Moment	0.000	kN.m at	0.000m	from	joint 4	
		BINATION 3						
Posit	ion (m)	Shear Porce	Axial Com	p. Bend	. Moment	dx	dy	Slop
fro	m End 1	(kN)	(k	N)	(kN.m)	(mm)	(mm)	(deg
Jt. 6	15.297	-13.855	86.6	22 2	222.245	21.7	-111.1	11.25
0.75L	11.473	26.593	94.7	12	97.888	18.3	-93.2	10.83
0.501	7.649	67.042	102.8	02	18.844	10.3	-52.8	10.60
0.251.	3.824	107.491	110.R	92 -	114.888	2.1	-11.7	10.85
Jt. 5	0.000	Shear Porce (kN) -13.855 26.593 67.042 107.491 147.940	118.9	81 -	303.307	0.0	-0.6	11.31
Maximum	-ve Ber	nding Moment nding Moment	-803.307	kN.m at	0.000m	from	joint 5	
		BINATION 3						
Posit.	ion (m)	Shear Force	Axial Com	p. Bend	Moment	dx	dv	Slop
fro	m End 1	(kN)	(k	N)	(kN.m)	(mm)	(mm)	(dea
Jt. 8	15.297	-141.269	117.6	47 -	701.259	43.5	-0.3	-11.13
0.75L	11.473	-100.820	109.5	57 -2	238.352	39.4	-21.2	-10.76
0.501.	7.649	-60.371	101.4	68	69.868	30.9	-64.4	-10.63
0.251	3.824	-19.922	93.3	78 :	223.400	23.7	-100.6	-10.93
Jt. 6	0.000	Shear Force (kN) -141.269 -100.820 -60.371 -19.922 20.527	85.2	88	222.245	21.7	-111.1	-11.37
Maximum	-ve Ber	ding Moment ding Moment	-701.259	kN.m at	15.297m	from	joint 6	
		BINATION 3						
		Shear Force						

	on (m) End 1	Shear Force	Axial Comp. (kN)	Bend.Moment (kN.m)	dx (mm)	dy (mm)	Slope (deg)
Jt. 8	8.000	87.657	161.598	701.259	43.5		90.178
0.75L	6.000	87.657	161.598	525.944	43.8	-0.2	89.857
0.50L	4.000	87.657	161.598	350.629	34.6	-0.1	89.627
0.25L	2.000	87.657	161.598	175.315	18.9	-0.1	89.490
Jt. 7	0.000	87.657	161.598	0.000	0.0	0.0	89.444

Maximum +ve Bending Moment 701.259 kN.m at 8.000m from Maximum -ve Bending Moment 0.000 kN.m at 0.000m from 701.259 kN.m at 8.000m from joint 7 0.000 kN.m at 0.000m from joint 7







مثال: كما بالرسم أطار هيكلي حديدى (Frame) وبه ونش متحرك على الأعمدة

W(D.L) = 0.175 t/m

W(L.L) = 0.225 t/m

W1 (W.L) = 0.225 t/m

W1 (W.R) = -0.1125 t/m

W2 (W.L) = 0.1125 t/m

W2 (W.R) = -0.225 t/m

M1 = -3.825 m.t

M2 = 3.825 m.t

H1 = 1t

H2 = -1 t

قطاع الأعمدة

Sec 1-1 IPE 360

Sec 4-4 IPE 220

قطاع الكمر

Sec 2-2 IPE 300

Sec 3-3 IPE 200

- تظهر بيانات ونتائج المنشأ كالأتي :

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No. o	f Joi	nts = 7					-				
MEMBE	RS										
			tails								
Mem:J			: 1 coor							(deq)	
:-	:-:		-:	:-	:-:		-:	:-	:		
1:	1:F:	0.000	: 0.00	0 :	2:F:	0.000	:	7.200 :	7.200 :	90.00	
2:	4.F.	10.000	: 7.20 : 3.25 : 0.00		3:1:	10.500	::	7.650 :	4 400 -	90.00	
4:	5:P:	10.500	. 0.00	0 :	4:F:	10.500	:	3.250 :	3.250 :	90.00	
5:	4:P:	10.500	: 3.25	0 :	6:F:	15.500		3.000 :	5.006 :	-2.86	
6:	7:F:	15.500	: 0.00	10 :	6:F:	15.500		3.000 :	3.000 :	90.00	
		ECTIONS	*****		****		******	******	******	· 五 万 马 包 包 河 井 で :	
Secti	on :	Area:	Inertia:	Rec	tangu	lar Eleme	nts (if specif	fied)		
Numbe	r :	(cm2):	(cm4):	No:	D (1	mm): B	(mm):	Y (mm)		
1		72.20:	17270.0								
						:	:				
	:-	53.80:	8360.0	:		: :	:				
3	:	28.50:		: :		:	:				
4	:	33.40:	2770.0:	: :		:	:				
			ROPERTIES		***						
Membe	r 1 P	RISMATIC	: Section	Numb	er l	: Modulu	ıs E =	210000	.0 N/mm2		

Member 2 PRISMATIC : Section Number 2 : Modulus E = 210000.0 N/mm2 Member 3 - 4 PRISMATIC : Section Number 1 : Modulus E = 210000.0 N/mm2 Member 5 PRISMATIC : Section Number 3 : Modulus E = 210000.0 N/mm2 Member 6 PRISMATIC : Section Number 4 : Modulus E = 210000.0 N/mm2 表示可有性性的工作,并不是主义的问题的对象,可以是一个人的对象的对象,可以是一个人的对象的对象。 SUPPORTS

No. of Supports = 3

Number	:	(kN/mm)	:	(kN/mm)	:	Angular Restraint (kN.m/radian)
	•		•		•	
1	:	FULL	:	FULL	:	ZERO
5	:	FULL	:	FULL	:	ZERO
7	:	PULL		FULL.		ZERO
		E##########			=	E E E E E E E E E E E E E E E E E E E

		:
***************************************	********************************	* JOB : CRANE ;
*	*	* DATE:
•	* * INPUT DATA	*
* *		
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APPLIED LOADS AND MOMENTS		
MEMBER 1		•
No: Name: :Type:	OSITION : LOAD / Start: Length: Start V	alue: End Value
3: windleft: UH :	2.250 : : -1.125 5.500 m: : -38.250 5.500 m: : 10.000	kN/m:
4: windright: UH :	: : -1.125 5.500 m : : -38.250	kN/m: kN.m:
6: cleft2: PH:	5.500 m : : 10.000	kN :
MEMBER 2		
No: Name :Type:	OSITION : LOAD / Start: Length: Start V	alue: End Value
1: Dead Load: UV:	: : 1.750 : : 2.250	kN/m:
2: Imposed Load: UV:	: 2.250	kN/m:
MEMBER 3		
LOAD CASE :LOAD: P	OSITION : LOAD/	HOMENT
	Start: Length: Start V	
3: windleft: UH :	: 1.125	kN/m:
4: windright: UH:	: -2.250 2.250 m :	kN/m:
8: cright2: PH :	: : 1.125 : : -2.250 2.250 m : : 38.250 2.250 m : : -10.000	kN :
MEMBER 5		
LOAD CASE :LOAD: P No: Name :Type:	OSITION :LOAD/ Start: Length: Start V	MOMENT alue: End Value
1: Dead Load: UV:	: 1.750	:
2: Imposed Load: UV:	: : 1.750 : : 2.250	kN/m:
MEMBER 6		
LOAD CASE :LOAD: P No: Name :Type:	OSITION :LOAD/ Start: Length: Start V	MOMENT alue: End Value
3: windleft: UR :		:
4: windright: UH :	: : 1.125 : -2.250	kN/m:
		高 神性 基 角 医 看 是 医 医 E E E E E E E E E E E

COMBINATIONS

			PARTIAL SAFETY	FACTORS
LOAD CASE				
No : Name		: 3 :		
1: Dead Los			;	
			n Next Page)	
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COMBINATIONS contin	nued			
CONDINATIONS CONCIN	idea			
			F PARTIAL SAPETY	FACTORS
LOAD CASE				
No : Name		2:3:		
2: Imposed Los	ad:1.000:1.0		:	
	ft: :1.0		•	
4: windrid	ht	1.000	;	
5: cleft	t1: :		.000:	
6: cleft	t2: :	: :1	.000:	
7: cright	tl: :	: :	:1.000	
8: cright	ht: : t1: : t2: : t1: :		:1.000	

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 RESULTS FOR COMBINATION 1

Joint Displacements and Reactions

Joint No.	dx(mm)	dy (mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0018	4.716	21.887	0.000
2	-4.98	-0.10	-0.0016			
3	-5.03	-0.12	0.0023			
4	-0.33	-0.06	0.0003			
5	0.00	0.00	0.0000	-1.849	28.249	0.000
6	-0.36	-0.05	0.0016			
7	0.00	0.00	-0.0006	-2.867	11.864	0.000

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 0.000 0.000	Py (kN) -62.000 0.000	MO (kN.m) -480.500 0.000
Reactions Summation	0.000	-62.000 62.000	-480.500 480.500
Summation	0.000	0.000	0.000

RESULTS FOR COMBINATION 2

Joint Displacements and Reactions

Joint No.	dx(ma)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	-0.0076	-8.647	14.718	0.000
2	46.74	-0.07	-0.0053			
3	46.67	-0.15	-0.0017			
4	25.31	-0.07	-0.0072			
5	0.00	0.00	-0.0081	-6.554	32.403	0.000
6	25.26	-0.06	-0.0043			
7	0.00	0.00	-0.0106	-9.324	14.879	0.000

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 24.525 0.000	Py (kN) -62.000 0.000	Mo (kN.m) -570.860 0.000
Reactions Summation	24.525 -24.525	-62.000 6 2.000	-570.860 570.860
Summation	0.000	0.000	0.000

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RESULTS FOR			**********			******
RESULTS FOR	COMPINA	ATTOM 3				
Joint Displ	acements	and React	ions			
Joint No.	dx(mm)	dv(mm)	O(rad)	Px (kN)	Pv (kN)	M (kN.m)
1	0.00	0.00	0.0109	14.283	29.326	0.000
2	-57.40	-0.14	0.0026			
3	-57.47	-0.09	0.0058			
4	-27.39	-0.05	0.6079			
5	0.00	0.00	0.0087	5.041	23.838	0.000
6	-27.40	-0.04	0.0076			
7	0.00	0.00	0.0101	5.425	8.836	0.000
Summation o		and Momen				
		Px (kN)	Py (kN)	Mo (kN.m)		
				-387.260		
	1	0.000	0.000	0.000		
Member Load Joint Loads Reactions		0.000	0.000	0.000		
Joint Loads		0.000 -24.750 24.750	-62.000 62.000	-387.260 387.260		
Joint Loads Reactions		0.000 -24.750 24.750	-62.000 62.000 0.000	-387.260 387.260 		
Joint Loads Reactions Summation		0.000 -24.750 24.750 0.000	-62.000 62.000 0.000	-387.260 387.260		
Joint Loads Reactions Summation Summation RESULTS FOR	COMBINA	0.000 -24.750 24.750 0.000	0.000 -62.000 62.000 0.000	-387.260 387.260 	·	
Joint Loads Reactions Summation Summation RESULTS FOR	COMBINA	0.000 -24.750 24.750 0.000 ATION 4	0.000 -62.000 62.000 0.000	-387.260 387.260 		M (kN.m

2	48.88	0.04	-0.0042			
3	48.82	-0.03	-0.0040			
4	23.43	-0.01	-0.0069			
5	0.00	0.00	-0.0073	-2.724	4.592	0.000
6	23.40	-0.01	-0.0055			
7	0.00	0.00	-0.0090	-4.470	2.905	0.000

Summation of Forces and Moments

Member Loads Joint Loads	Px (kN) 10.000 0.000	Py (kN) 0.000 0.000	Mo (kN.m) -93.250 0.000
Reactions Summation	10.000 -10.000	0.000	-93.250 93.250
Summation	0.000	0.000	0.000

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RESULTS FOR COMBINATION 5

Joint Displacements and Reactions

Joint No.	dx(mma)	dy(mm)	0(rad)	Px (kN)	Py (kN)	M (kN.m)
1	0.00	0.00	0.0079	5.425	7.584	0.000
2	-47.38	-0.04	0.0040			
3	-47.44	0.03	0.0037			
4	-21.97	0.01	0.0067			
5	0.00	0.00	0.0068	0.385	-4.860	0.000
6	-21.93	0.01	0.0051			
7	0.00	0.00	0.0084	4.190	-2.724	0.000

Summation of Forces and Moments

Hember Loads Joint Loads	Px (kN) -10.000 0.000	Py (kN) 0.000 0.000	Mo (kN.m) 93.250 0.000
Reactions Summation	-10.000 10.000	0.000	93.250 -93.250
Summation	0.000	0.000	0.000

Maxima for Member 1

Load	Shear (kN)	Maximum Axi	ial (kN)	< B	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-4.716	21.887	0.000	0.000	0.000	-33.958	7.200
2	8.647		0.000	16.616	3.843	0.000	0.000
3	-14.283	29.326	0.000	0.000	0.000	-73.680	7.200
4	-7.194	0.000	7.497	53.686	5.500	0.000	0.000
5		- 7.584	0.000	0.000	0.000	~39.059	7.200

Maxima for Member 2

	Shear (kN)					ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	21.665	5.649	0.000	24.824	5.426	-33.958	0.000
2	-27.581	8.176	0.000	29.838	3.602	-65.424	10.510
3	29.034	7.433	0.000	31.886	7.272	-73.680	0.000
4	-7.799	6.866	0.000	41.457	0.000	-40.504	10.510
5	7.345	5.745	0.000	38.132	10.510	-39.059	0.000

Maxima for Member 3

Load	Shear (kN)	Maximum Axi	al (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	4.716	20.113	0.000	26.762	4.400	0.000	0.000
2	12.503	27.282	0.000	65.424	4.400	0.000	0.000
3	6.183	12.674	0.000	0.000	0.000	-19.454	1.652
4	7.194	7.497	0.000	40.504	4.400	0.000	0.000
5	5.425	0.000	7.584	0.000	0.000	-49.795	2.250

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Maxima for Member 4

	Shear (kN)	Maximum Axi	ial (kN)	< E	Sending Mon	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (a)
1	1.849	28.249	0.000	6.010	3.250	0.000	0.000
2	6.554	32.403	0.000	21.301	3.250	0.000	0.000
3	-5.041	23.838	0.000	0.000	0.000	-16.385	3.250
4	2.724	4.592	0.000	8.852	3.250	0.000	0.000
5	-0.385	0.000	4.860	0.000		-1.251	3.250

Maxima for Member 5

	Shear (kN)	Maximum Axi	ial (kN)	< Be	ending Mom	ent (kN.m)	>
Comb.	(Abs. Max.)	(Compression)	(Tension)	Max.+ve	Pos. (m)	Maxve	Pos. (m)
1	-11.706	3.456	0.000	8.569	2.072	-8.602	5.006
2	-14.563	6.684	0.000	3.670	1.356	-22.908	5.006
3	11.216	1.764	0.000	15.764		0.000	0.000
4	-2.678	4 600	0.000	0.000	0.000	13 400	5.000

5	2.511	0.000	4.321	12.571	5.006	0.000	0.000
Maxima	for Member 6		₩.			_	
Comb. 1 2 3 4 5	Shear (kN) (Abs. Max.)(C 2.867 9.324 -5.425 4.470 -4.190	Compression) 11.864 14.879 8.836 2.905 0.000	(Tension) N 0.000 0.000 0.000 0.000 2.724	8.602 22.908 0.000	Pos. (m) P 3.000 3.000 0.000 3.000	0.000 0.000 0.000 -6.541 0.000	0.000 0.000 2.411 0.000
RESULT	S FOR COMBINA	ATION 1 ME	MBER 1				
Posi	tion (m) She	ar Force A	xial Comp.	Bend.Mome	nt dx	dy	
fr	om End 1	(kN)	(kN)	(kN.	m) (mm)	(mm)	
Jt. 2	7.200	-4.716	21.887	-33.9			
0.75L	5.400	-4.716	21.887	-25.4			
0.50L	3.600	-4.716	21.887		79 -5.5		
0.25L	1.800	-4.716	21.887	-8.4			
Jt. l	0.000	-4.716	21.887	0.0	0.0	0.0	90.104
Maximu	m +ve Bendin	Moment	0.000 kN	.mat 0	.000m from	joint 1	
	m -ve Bendin		-33.958 kN	mat 7	.200m from	joint 1	

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RESULTS	FOR COMBI	NATION 1	MEMBER 2				
Posit	ion (m) S	hear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
fro	m End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg
Jt. 3	10.510	-20.296	3.851	-26.762	-5.0	-0.1	2.58
0.75L	7.882	-9.806	4.300	12.783	-4.7	-8.3	2.62
0.50L	5.255	0.685	4.750	24.765	-4.5	-12.4	2.44
0.25L	2.627	11.175	5.200	9.185	-4.7	-7.6	2.27
Jt. 2	0.000	21.665	5.649	-33.958	-5.0	-0.1	2.36
Maximum	+ve Bendi	ng Moment	24.824 kN.:	m at 5.426m	from	joint 2	
Maximum	-ve Bendi	ng Moment	-33.958 kN.:	m at 0.000m	from	ioint 2	

		BINATION 1					
Ponit in	. (=)	Char Parce	Avial Comp	Bend. Moment	dx	dv	Slone
from F	and 1	(kn)	(ku)	(kN m)	(mm)	(mm)	(deg)
Tr 3 /	1 400	4.716	20.113	(kN.m) 26.762 21.574 16.386 11.198	~5.0	-0.1	90.130
0 751.	3 300	4 716	20 113	21 574	-2.9	-0.1	90.088
0 50T.	2.200	4.716	20.113	16.386	-1.6	-0.1	90.055
0.351	1 100	4.716	20.113	11 198	-0.8	-0.1	90-031
Jt. 4	0.000	4.716	20.113	6.010	-0.3	-0.1	90.016
Maximum +	ve Ben	ding Moment	26.762 kM	i.m at 4.400m	from	joint 4	
				1.m at '0.000m			
RESULTS FO	OR COM	BINATION 1	MEMBER 4				
Positio	n (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from 1	End 1	(kN)	(kN)	(kN.m) 6.010 4.507 3.005 1.502	(mm)	(mm)	(deg)
Jt. 4	3.250	1.849	28.249	6.010	-0.3	-0.1	90.016
0.75L :	2.438	1.849	28.249	4.507	-0.2	0.0	90.009
0.50L	1.625	1.849	28.249	3.005	-0.1	0.0	90.005
0.25L	0.813	1.849	28.249	1.502	0.0	0.0	90.002
Jt. 5	0.000	1.849	28.249	0.000	0.0	0.0	90.00
Maximum +	ve Ben	ding Moment	6.010 ki	N.m at 3.250m	from	joint 5	
Maximum -	ve Ben			N.m at 0.000m			
RESULTS F	OR COM	BINATION 1					
Positio	n (m)	Shear Force	Axial Comp.	Bend.Moment (kN.m) -8.602	dx	dy	Slope
from	End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(qs3
Jt. 6	5.006	-11.706	3.456	-8.602	-0.4	-0.1	-2.7
0.75L	3.755	-6.712	3.206	2.924	-0.5	~2.9	-2.730
0.50L	2.503	-1.718	2.957	8.199 7.225 0.000	-0.6	-4.8	
0.25L	1.252	3.276	2.707	7.225	-0.5	-3.7	-2.98
Jt. 4	0.000	8.269	2.457	0.000	-0.3	-0.1	-3.05
Maximum +	ve Ben	ding Moment	8.569 ki	N.m at 2.072m	from	ioint 4	
				N.m at 5.006m			
				N.m at 5.006m			.

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RESULTS FOR COMBINATION 1 M	ÆMBER 6	

Position (m)		Axial Comp.	Bend.Moment (kN.m)	dx (ma)	dy (pom.)	Slope (deg)
Jt. 6 3.000	2.867	11.864	8.602	-0.4		90.092
0.75L 2.250	2.867	11.864	6.451	0.5	0.0	90.036

0.50L 0.25L	1.500						
0.25L			11.864	4.301	0.7	0.0	89.996
	0.750	2.867 2.867	11.864	2.150	0.4	0.0	89.972
Jt. 7	0.000	2.867			0.0	0.0	89.964
			_			_	
Maximum +	ve Ben	ding Moment	8.602 kN. 0.000 kN.	m at 3.0	000m from	joint 7	
Maximum -	ve Ben	ding Moment	0.000 kN.	mat 0.0	000m from	joint 7	
*******	***		RESERVED	*********		******	
RESULTS F	OR COM	BINATION 2	MEMBER 1				
Positio	n (m)	Shear Force	Axial Comp.	Bend . Moment	t dx	dy	Slope
from	End 1	(kN)	(kN) 14.718 14.718	(kN.m) (mm)	(mm)	(deg)
Jt. 2	7.200	-7.553	14.718	3.93	46.7	-0.1 -0.1	89.698
0.75L	5.400	-3.503	14.718	13.89	36.9	-0.1	89.671
0.50L	3.600	0.547	14.718	16.55	25.9	0.0	89.626
0.25T.	1.800	4.597	14.718	11.92	13.5	0.0	89.584
7+ 1	0 000	8 647	14.718 14.718 14.718	0.00	0.0	0.0	89.565
J	0.000	0.047	14.7.0	*****			
Marimum 4	ue Ben	ding Moment	16.616 kN	mat 3.	843m from	ioint 1	
Marinum -	ve Ben	ding Moment	16.616 kN 0.000 kN	mat 0	000m from	ioint 1	
MEXIMUM -	ve ben	aring Moment	0.000 KM	.m ac			
		BINATION 2					
Positio	n (=)	Shear Force	Axial Comp.	Rend . Momen	t dx	dv	Slope
from	End 1	(kN)	(kN)	(kN.m) /mm)	(mm)	(deg)
T+ 2 1	0.510	-27 581	6 378	-65.42	4 46 7	-0.4	2 358
0.55	7 002	17.000	6 927	-6 73	0 46 0	-4.3	2 649
0.735	7.002	-17.070	7 227	24 30	3 47 2	-12.0	2 553
0.301	3.233	-0.000	7.217	24.30	3 47.2	-12.0	2.333
0.255	2.62/	3.890	0.126	27.34	2 47.2	-11.1	2.309
Jt. 2	0.000	14.361	AXIAI COMP. (kN) 6.378 6.827 7.277 7.727 8.176	3.93	9 40.7	-0.1	2.132
Maximum +	rve Ben	ding Moment	29.838 kN -65.424 kN	mat 3.	602m from	joint 2	
Maximum -	-ve Ber	ding Moment	-65.424 kN	.m at 10.	510m from	joint 2	
		BINATION 2	MEMBER 3				
Positio	n (m)	Shear Force	Axial Comp.	Rend Momen	t dx	dv	Slope
free	Pad 1	Shear Loice	Axial Comp. (kN) 27.282 27.282 27.282 27.282	/kp -) (==)	/mms	(dec)
11.00	A 400	7 653	77 707	65.42	, (Hall)	(1011)	10591
0.75	4.400	7.333	27.282	55.42	- 40./	-0.1	09.904
U./3L	3.300	8.790	27.282	36.43	5 43.8	-0.1	07./98
0.50L	2.200	10.028	27.282	46.08	3 39.0	-0.1	89.709
0.25L	1.100	11.265	27.282	34.37	4 32-7	-0.1	87.639
Jt. 4	0.000	12.503	27.282	21.30	1 25.3	-0.1	89.590
Maximum -	ve Ber	ding Moment	65.424 kN 0.000 kN	.m at 4.	400m from	joint 4	
	we Der	ding Moment	0.000 kN	.mat 0.	000m from	joint 4	

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RESULTS FOR COMBINATION 2 MEMBER 4

Position (m) from End 1 1t. 4 3.250 1.75L 2.438 1.50L 1.625 1.25L 0.813 1t. 5 0.000						
	Shear Force	Axial Comp.	Rend . Moment	dv	dv	Slope
from End 1	(kn)	(kN)	(kN.m)	(mm)	/mm)	(deg)
** 4 2 250	6 554	22 402	21 301	25 3	-0.1	99 590
15. 4 3.230	0.334	32.403	16.036	10.3	-0.1	00 566
).75L 2.438	6.554	32.403	. 13.976	19.3	-0.1	89.300
).50L 1.625	6.554	32.403	10.651	13.0	0.0	89.549
).25L 0.813	6.554	32.403	5.325	6.6	0.0	89.539
t. 5 0.000	6.554	32.403	0.000	0.0	0.0	89.536
Maximum +ve Be	nding Moment	21.301 kN	.m at 3.250m .m at 0.000m	from	joint 5	
RESULTS FOR CO						
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
Jt. 6 5.006	-14.563	6.684	~22.908	25.3	-0.1	-3.107
0.75L 3.755	-9.570	6.434	-7.806	25.4	1.9	-2.845
0.50L 2.503	-4.576	6.185	1.046	25.3	0.7	-2.795
1.257. 1.252	0.418	5.935	3.648	25.3	-0.3	-2.846
jt. 4 0.000	5.412	5.685	Bend.Moment (kN.m) ~22.908 ~7.806 1.046 3.648 0.000	25.3	-0.1	-2.887
Maximum +ve Be	nding Moment	3.670 kN	I.m at 1.356	from	ioint 4	
Maximum -ve Be	nding Moment	-22.908 kN	I.m at 1.356 I.m at 5.006	from	joint 4	
RESULTS FOR CO		MEMBER 6				
Position (m)	Shear Force	Axial Comp.	Bend.Moment (kN.m) 22.908 18.130 12.720 6.676 0.000	dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
T+ 6 3.000	5.949	14.879	22.908	25.3	-0.1	89.756
A 757 3 350	6 702	14 070	10 130	21 0	0.0	89 604
0.736 2.230	0.772	14.079	10.130	15.0	0.0	00 400
0.50L 1.500	7.636	14.879	12.720	13.0	0.0	09.409
0.25L 0.750	8.480	14.879	6.676	7.8	0.0	89.41/
Jt. 7 0.000	9.324	14.879	0.000	0.0	0.0	89.392
Maximum +ve Be	ending Moment	22.908 kt	i.m at 3.000 i.m at 0.000	n from	joint 7	
Maximum -ve Be	nding Moment	0.000 ki	i.m at 0.000	n from	joint 7	
RESULTS FOR CO	MBINATION 3	MEMBER 1				
Position (m)	Shear Force	Axial Comp.	Bend.Moment	dx	dy	Slope
	(kN)	(kN)	(kN.m)	(mm)	(mm)	(deg)
rom End		20 226				
Jt. 2 7.200	-6.183	29.320	-73.680	-57.4	-0.1	90.150
Jt. 2 7.200 0.75L 5.400	-6.183 -8.208	29.326	-73.680 -60.728	-57.4 -49.6	-0.1	90.150
Jt. 2 7.200 0.75L 5.400	-6.183 -8.208	29.326 29.326	-73.680 -60.728 -44.130	-57.4 -49.6	-0.1 -0.1	90.150
Jt. 2 7.200 0.75L 5.400 0.50L 3.600	-6.183 -8.208 -10.233	29.326 29.326 29.326	-73.680 -60.728 -44.130	-57.4 -49.6 -36.4	-0.1 -0.1 -0.1	90.150 90.342 90.492
Jt. 2 7.200 0.75L 5.400 0.50L 3.600 0.25L 1.800 Jt. 1 0.000	-6.183 -8.208 -10.233 -12.258 -14.283	29.326 29.326 29.326 29.326 29.326	-73.680 -60.728 -44.130 -23.888 0.000	-57.4 -49.6 -36.4 -19.2 0.0	-0.1 -0.1 -0.1 0.0	90.342 90.492 90.589 90.624
Position (m) from End 1 Jt. 2 7.200 0.75L 5.400 0.50L 3.600 0.25L 1.800 Jt. 1 0.000						
Maximum +ve Be	ending Moment	0.000 ki	-73.680 -60.728 -44.130 -23.888 0.000 N.m at 0.000 N.m at 7.200	m from	ioint 1	

- DATE: * ANALYSIS RESULTS *SHEET: 11 . ANALYSE (C)Copyright Computer and Design Services Limited 1985 RESULTS FOR COMBINATION 3 MEMBER 2 ďx фy Slope Position (m) Shear Force Axial Comp. Bend.Moment (kN) (kN) (kN.m) (--) (--) (deg) from End 1 -12.927 -0.1 2.789 -57.5 Jt. 3 10.510 5.635 10.958 2.588 0.75L 7.882 6.085 -57.0 -11.5 -2.437 31.142 2.333 0.50L 5.255 6.534 23.764 -56.9 -11.6 8.053 6.984 2.260 0.25L 2.627 18.544 -11.177 -57.3 ~3.2 -73.680 -57.4 -0.I 2.604 Jt. 2 0.000 29.034 7.433 Maximum +ve Bending Moment 31.886 kN.m at 7.272m from joint 2 Maximum -ve Bending Moment -73.680 kN.m at 0.000m from joint 2 RESULTS FOR COMBINATION 3 MEMBER 3 Position (m) Shear Force Axial Comp. Bend.Moment dx (kN) (kN.m) (mm) ďγ Slope (20) (deg) 4.400 6.183 12.674 -10.958 -57.5 -0.1 90.335 Jt. 3 0.75L 12.674 -16.398 -50.8 -0.1 90.359 3.300 3.708 -0.1 90.390 0.50L 2.200 12.674 -19.116 -43.6 1.233 -0.1 90.424 1.100 12.674 -19.112 -35.8 0.25L -1.242 12.674 -16.385 -27.4 -0.1 90.455 0.000 -3.717 Maximum +ve Bending Moment Maximum -ve Bending Moment RESULTS FOR COMBINATION 3 MEMBER 4 ďχ Slope dy Position (m) Shear Force Axial Comp. Bend.Moment from End 1 (kN) (kN.m) (deg) (kN) (mm) (mm) -0.i Jt. 4 3.250 -5.041 23.838 -16.385 -27.4 0.75L 2.438 -12.288 -20.8 -5.041 23.838 0.0 90.473 -9.192 -14 - 3 0.0 90.486 0.50L 1.625 -5.041 23.838 0.813 -5.041 -4.096 -7.0 0.0 90.494 0.25L 23.838 0.000 0.0 0.0 90.497 Jt. 5 0.000 -5.041 23.838 0.000 kN.m at 0.000m from joint 5 -16.385 kN.m at 3.250m from joint 5 Maximum +ve Bending Moment Maximum -ve Bending Moment RESULTS FOR COMBINATION 3 MEMBER 5 Position (m) Shear Force Axial Comp. Bend.Moment dx (mm) -27.4 dx фy SIope (kN) (mm) from End 1 (kN) (kN.m) (deq) 5.006 6.151 0.0 -2.425 Jt. 6 -8.759 1.764 -27.8 -27.9 -27.8 0.75L 3.755 -3.765 1.515 13.988 -7.8 -2.611

1.265

1.015

0.766

15.764 kN.m at

0.000 kN.m at

15.575

10.513

0.000

-27.4

2.811m from joint 4 0.000m from joint 4

-10.4 ~2.880 -7.2 -3.123

-0.1 -3.228

1.229

6.222

11.215

0.50L

0.25L

Jt. 4

2.503

1.252

0.000

Maximum +ve Bending Moment Maximum -ve Bending Moment

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RESULTS FOR COM		MEMBER 6			
Position (m)	Shear Force	Axial Comp. Bend	.Moment dx	d y	Slope
from End 1	(kH)	(kN)	(kN.m) (mm)	(1000)	(deg)
Jt. 6 3.000	1.325	8.836	-6.151 -27.4		90.438
0.75L 2.250	-0.363	8.836	-6.511 -21.4		90.485
0.50L 1.500	-2.050	8.836	-5.607 -14.7		90.531
0.25L 0.750	-3.738	8.836	-3.436 -7.5		90.565
Jt. 7 0.000	-5.425	8.836	0.000 0.0	0.0	90.579
Maximum +ve Ben					
Maximum -ve Ben		-6.541 kN.m at	2.411m from		
RESULTS FOR COM		MEMBER 1			
RESULTS FOR COM	BINATION 4	MEMBER 1			
Position (m)			.Moment dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m) (mm)	(mm.)	(deg)
Jt. 2 7.200	-7.194	-7.497	41.457 48.9	0.0	89.757
0.75L 5.400	2.806	-7.497	15.155 39.2	0.0	89.627
0.50L 3.600		-7.497	10.103 26.9		89.591
0.25L 1.800			5.052 13.7		89.570
Jt. 1 0.000	2.806	-7.497	0.000 0.0		89.562
W Ba	di Wama-4	52 606 km =	5.500m from	ioint 1	
Maximum -ve Ber	ding Moment	53.686 kN.m at 0.000 kN.m at	0.000m from		
					
RESULTS FOR COM	BINATION 4	MEMBER 2			
Position (m)	Shear Force		.Moment dx	dy	Slope
from End 1	(kN)	(kN)	(kN.m.) (mm.)	(mm)	(deg)
Jt. 3 10.510	-7.799		-40.504 48.8	0.0	2.228
0.75L 7.882	-7.799		-20.014 48.7		2.487
0.50L 5.255	-7.799	6.866	0.477 48.9		2.571
0.25L 2.627	-7.799	6.866	20.967 49.0		2.479
Jt. 2 0.000	-7.799		41.457 48.9		2.211
Maximum +ve Ber	nding Moment	41.457 kN.m at	0.000m from		
Maximum -ve Ber	nding Moment	-40.504 kN.m at	10.510m from	joint 2	
RESULTS FOR COM	BINATION 4	MEMBER 3			
Position (m)	Shear Force	Axial Comp. Bend	.Moment da	dy:	Slope
from End 1	(kN)	(kN)	(kN·m) (mm)		(deg)
Jt. 3 4.400	7.194	7.497	40.504 48.8		89.774
0.75L 3.300	7.194	7.497	32.591 43.6		89.710
0.50L 2.200	7.194	7.497	24.678 37.8		
					89.660
0.25L 1.100	7.194	7.497	16.765 30.9		89.624
Jt. 4 0.000	7.194	7.497	8.852 23.4	0.0	89.602

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RESULTS	FOR COM	BINATION 4	MARKE 4				
Positio	on (m)	Shear Force	Axial Comp	. Bend. Moment	dx	dy	
	End 1	(kN)	(kN		((man)	(deg)
Jt. 4	3.250	2.724	4.59	8.852	23.4	0.0	89.602
0.75L	2.438	2.724	4.59	2 6.639	17.7		89.592
0.50L	1.625	2.724	4.59			0.0	
0.25L	0.813	2.724	4.59		6.0	0.0	89.581
Jt. 5	0.000	2.724	4.59	2 0.000	0.0	0.0	89.579
			0 653	-v = + 3 25€	- from	joint 5	
Maximum	tve Bel	nding Moment	0.000	KN.mat 0.000	e from		
MAXIMUM							
RESULTS	FOR CO	IBINATION 4	JERNESK 5				
		Chase Bases	Print Corn	. Bend.Moment	dx	dv	Slope
	on (m)		(kN		(200)		(deg)
Jt. 6		-2.678	4.60		23.4		-3.177
0.75L	3.755		4.60		23.6		-2.971
0.50L	2.503		4.60		23.7	5.1	-2.823
0.25L	1.252				23.6	3.2	
Jt. 4	0.000	-2.678			23.4	0.0	-2.705
Maximum	+ve Be	nding Moment nding Moment	0.000	kN.m at 0.000	a from		
Maximum	-ve Be	nding Moment	-13.409	kn.mat 5.000	m from	Joint 4	
		MBINATION 4	ANDREA 6				
							G1
	on (m)			. Bend.Moment	dx (==)		
	End 1	(kN)	(kN		23.4		
Jt. 6	3.000		2.90 2.90		18.7		
0.75L	2.250	4.470	2.90		13.6		89.537
0.50L 0.25L	1.500		2.90 2.90		6.7		89.500
Jt. 7	0.750	4.470	2.90		0.0		89.487
Jt. 7	0.000	4.4/	2.90	, 0.000	0.0		22.1407
Maximum	tve Be	nding Moment			lm from		
		nding Noment	4_6 00	in.a at 0.050	a from		

RESULTS	FOR CO	MBINATION 5	MODER 1				
		ah n	C	Band Monest	da	ďy	Slope
POSIT	ion (m)	Snear Force	WATER COMP	 Bend.Noment 	400	. uy	arobe

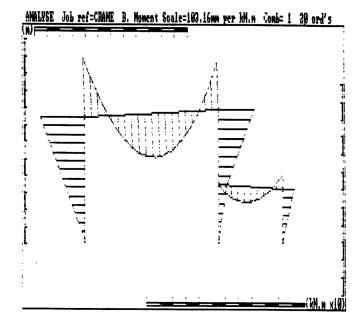
from	End 1	(kN) -5.425	(kN) 7-584	(kN.m; -39.059	(mm)	(mm.)	(deg) 90.229
0.75L 0.50L	5.400 3.600	-5.425	7.584	-29.294	-38.6 -27.2	0.0	90.325
0.25L	1.800	-5.425	7.584 7.584	-19.529 -9.765	-14.0	0.0	90.437
Jt. 1	0.000	-5.425	7.584	0.000	0.0	0.0	90.451
	<pre>+ve Bending -ve Bending</pre>		0.000 kN.m -39.059 kN.m			joint 1 joint 1	

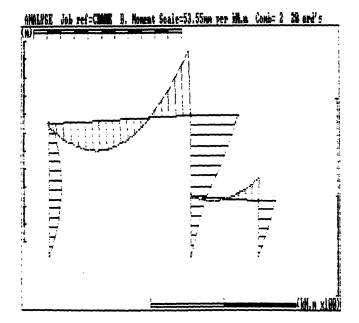
<u>'</u>			:			* JOB : C	tions:
			*			· DATE:	
				SIS RES			14
ANAL	TSE (C)C	opyright Comp	uter and Desi	gn Services Li	imited 1	985	
		BINATION 5					
	ion (m)		Axial Comp.	Bend. Moment	dx	dy	Slope
fro	m End 1	(kH)	(kN)	(kM.m) 38.132	(mm)	(20)	(deg)
It. 3	10.510 7.882	7.345	5.745	38.132	-47.4	0.0	2.667
0.75L	7.882 5.255	7.345 7.345	5.745 5.745	18.834 -0.463	-47.3	-3.5	2.423
	2.627		3.743	-0.463	-47.6	4.0	2.431
	0.000	7.345	5.745 5.745	-19.761 -39.059	-47.4	. 0.0	2.683
	0.000	,	3.,43	-33.033	****	•••	
laximum Kaximum	+ve Ber	ding Moment	-39.059 kN	.m at 10.51	Om from	joint 2	
RESULTS	FOR CO	BINATION 5					
Posit	ion (m)	Shear Force	Axial Comp.	Bend. Noment	dx	dy	Slope
Posit fro	ion (m) m End l	Shear Force	Axial Comp. (kN)	Bend. Noment (kH.m)	dx (ma)	dy (==)	(deg)
fro It. 3	m End 1	(kH) 5.425	(kN) -7.584	(kH.m) -38.132	(mm) -47.4	0.0	(deg)
fro It. 3	m End 1	(kH) 5.425	(kN) -7.584	(kH.m) -38.132	(mm) -47.4 -42.7	0.0 0.0	90.21 90.28
fro Jt. 3 0.75L 0.50L	m End 1 4.400 3.300 2.200	(kH) 5.425 5.425 -4.575	(kN) -7.584 -7.584 -7.584	(kM.m) -38.132 -44.099 -11.317	(mm) -47.4 -42.7 -36.4	0.0 0.0 0.0	90.21 90.28 90.36
fro Jt. 3 0.75L 0.50L 0.25L	m End 1 4.400 3.300 2.200 1.100	(kil) 5.425 5.425 -4.575 -4.575	(kÑ) -7.584 -7.584 -7.584 -7.584	(kH.m) -38.132 -44.099 -11.317 -6.284	(mm) -47.4 -42.7 -36.4 -29.3	(ma) 0.0 0.0 0.0 0.0	90.21 90.28 90.36 90.36
fro Jt. 3 0.75L 0.50L 0.25L	m End 1 4.400 3.300 2.200	(kii) 5.425 5.425 -4.575 -4.575	(kÑ) -7.584 -7.584 -7.584 -7.584	(kH.m) -38.132 -44.099 -11.317 -6.284	(mm) -47.4 -42.7 -36.4 -29.3	(ma) 0.0 0.0 0.0 0.0	(deg) 90.21 90.28 90.36 90.37
fro Jt. 3 0.75L 0.50L 0.25L Jt. 4	m End 1 4.400 3.300 2.200 1.100 0.000	(kH) 5.425 5.425 -4.575 -4.575 -4.575	(kN) -7.584 -7.584 -7.584 -7.584 -7.584	(kM.m) -38.132 -44.099 -11.317 -6.284 -1.251	(mm) -47.4 -42.7 -36.4 -29.3 -22.0	(==) 0.0 0.0 0.0 0.0 0.0 joint 4	90.21 90.28 90.36 90.36
fro Jt. 3 0.75L 0.50L 0.25L Jt. 4 Maximum	m End 1 4.400 3.300 2.200 1.100 0.000 +ve Ber	(kH) 5.425 5.425 -4.575 -4.575 -4.575 ading Homent	(kN) -7.584 -7.584 -7.584 -7.584 -7.584 0.000 kb -49.795 kb	(kM.m) -38.132 -44.099 -11.317 -6.284 -1.251 V.m at 0.00	(mm) -47.4 -42.7 -36.4 -29.3 -22.0	0.0 0.0 0.0 0.0 0.0	90.21 90.28 90.36 90.36
fro Jt. 3 0.75L 0.50L 0.25L Jt. 4 Naximum	m End 1 4.400 3.300 2.200 1.100 0.000 +ve Ber	(kH) 5.425 5.425 -4.575 -4.575 -4.575 ading Homent	(kN) -7.584 -7.584 -7.584 -7.584 -7.584 0.000 kN	(kM.m) -38.132 -44.099 -11.317 -6.284 -1.251 V.m at 0.00	(mm) -47.4 -42.7 -36.4 -29.3 -22.0	(==) 0.0 0.0 0.0 0.0 0.0 joint 4	90.21 90.28 90.36 90.36
fro Jt. 3 0.75L 0.50L 0.25L Jt. 4 Maximum RESULTS	m End 1 4.400 3.300 2.200 1.100 0.000 4-ve Ber	(kH) 5-425 5-425 -4.575 -4.575 -4.575 adding Moment	(kN) -7.584 -7.584 -7.584 -7.584 -7.584 0.000 kn -49.795 kn	(km.m) -38.132 -44.099 -11.317 -6.284 -1.251 f.m at 0.00 i.m at 2.25	(mm) -47.4 -42.7 -36.4 -29.3 -22.0 Om from	(=) 0.0 0.0 0.0 0.0 0.0 joint 4 joint 4	(deg) 90.21 90.28 90.36 90.37 90.38
fro Jt. 3 0.75L 0.50L 0.25L Jt. 4 Maximus Maximus RESULTS	m End 1 4.400 3.300 2.200 0.000 1.100 0.000 1.ve Ber	(kH) 5.425 5.425 5.425 -4.575 -4.575 -4.575 ding Moment ding Moment	(kN) -7.584 -7.584 -7.584 -7.584 -7.584 -7.584 0.000 ks -49.795 kN	(kH.m) -18.132 -44.099 -11.317 -6.284 -1.251 f.m at 0.00 f.m at 2.25	(mm) -47.4 -42.7 -36.4 -29.3 -22.0 Om from Om from	(=) 0.0 0.0 0.0 0.0 0.0 joint 4 joint 4	90.21 90.28 90.36 90.36
fro Jt. 3 0.75L 0.50L 0.25L Jt. 4 Maximus Maximus RESULTS	m End 1 4.400 3.300 2.200 0.000 1.100 0.000 1.ve Ber	(kH) 5.425 5.425 5.425 -4.575 -4.575 -4.575 ding Moment ding Moment	(kN) -7.584 -7.584 -7.584 -7.584 -7.584 -7.584 -7.584 -7.584 -49.795 kN -49.795 kN -49.48.60	(kM.m) -38.132 -44.099 -11.317 -6.284 -1.251 *.m at 0.00 *i.m at 2.25 *** Bend.Moment (kM.m) -1.251	(mm) -47.4 -42.7 -36.4 -29.3 -22.0 0m from 0m from dx (mm)	(mm) 0.0 0.0 0.0 0.0 0.0 joint 4 joint 4	(deg) 90.213 90.283 90.363 90.375 90.385
fro Jt. 3 0.75L 0.50L 0.25L Jt. 4 Naximum Maximum RESULTS Posit fro Jt. 4	m End 1 4.400 3.300 2.200 1.100 0.000 1.4ve Berrere Berrere 1.5ve Berrere	(kH) 5.425 5.425 -4.575 -4.575 -4.575 dding Homent dding Homent SHRATION S Shear Force (kH) -0.385 -0.385	(kN) -7.584 -7.584 -7.584 -7.584 -7.584 -7.584 0.000 km -49.795 km MEMBER 4 Axial Comp. (kN) -4.860 -4.860	(kM.m) -38.132 -44.099 -11.317 -6.284 -1.251 *.m at 0.00 *i.m at 2.25 *** Bend.Moment (kM.m) -1.251	(mm) -47.4 -42.7 -36.4 -29.3 -22.0 Om from om from dx (mm) -22.0	(mm) 0.0 0.0 0.0 0.0 joint 4 joint 4 joint 4	(deg) 90.21 90.28 90.36 90.37 90.38
fro It. 3 0.75L 0.50L 0.25L Jt. 4 Maximum Maximum Fro Jt. 4 0.75L 0.584L	m End 1 4.400 3.300 2.200 1.100 0.000 4-ve Berrian-ve B	(kH) 5.425 5.425 -4.575 -4.575 -4.575 -4.575 dding Homeent HBIRATION 5 Shear Force (kH) -0.385 -0.385	(kN) -7.594 -7.594 -7.594 -7.594 -7.584 -7.584 0.000 ks -49.795 ks MEMBER 4 Axial Comp. (kN) -4.860 -4.860	(kM.m) -38.132 -44.099 -11.317 -6.284 -6.284 -1.251 I.m at 0.00 i.m at 2.25 Bend.Moment (kM.m) -1.251 -0.938 -0.626	(mm) -47.4 -42.7 -36.4 -29.3 -22.0 Om from Om from dx (mm) -22.0 -16.5	(mm) 0.0 0.0 0.0 0.0 joint 4 joint 4 0.0 0.0	(deg) 90.21; 90.28; 90.38; 90.38; Slop (deg 90.38;
fro Jt. 3 0.75L 0.50L 0.25L Jt. 4 Maximus Maximus Posit fro Jt. 4 0.75L	m End 1 4.400 3.300 2.200 1.100 0.000 1.400 Berri 	(kH) 5.425 5.425 -4.575 -4.575 -4.575 -4.575 dding Homeent HBIRATION 5 Shear Force (kH) -0.385 -0.385	(ki) -7.584 -7.584 -7.584 -7.584 -7.584 -7.584 -7.584 -9.795 ki -4.950 (ki) -4.860 -4.860 -4.860 -4.860	(kH.m) -18.132 -44.099 -11.317 -6.284 -1.251 i.m at 0.00 i.m at 2.25 Bend.Homent (kH.m) -1.251 -0.938 -0.626 -9.313	(mm) -47.4 -42.7 -36.4 -29.3 -22.0 Om from om from dx (mm) -22.0	(mm) 0.0 0.0 0.0 0.0 joint 4 joint 4 joint 4 0.0 0.0 0.0	(deg 90.21, 90.28, 90.36, 90.38, 90.38, 810, 90.38, 90.38, 90.38,

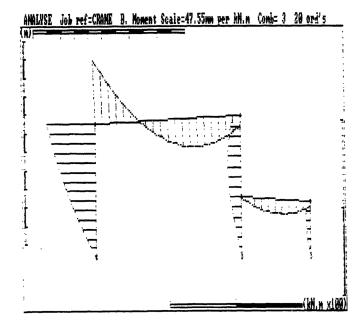
aximum -	-ve Ben	ding Mom	wat	-	0.000 k 1.251 k	N.m at N.m at	3.250	m from	joint 5 joint 5	
		BINATION			R 5					
Positio	on (m)	Shear F	orce	Axia	l Comp.	Bood	.Moment	dx	dy	Slope
	End 1		(kN)		(kii)		(kH.m)	(20)	(mma) 0.0	(deg)
t. 6	5.006	2	.511		-4.321		12.571	-21.9	0.0	-2.761
.75L .50L	3.755	2	.511		-4.321		9.428	-22.2	-4.2	-2.761
.50L	2.503	2	-511		-4.321		6.285	-22.2		-2.98
							3.143		0.0	
. 4	0.000	2	.511		-4.321		0.000	-22.0	0.0	-3.01
zimum -	+ve Ben	ding Mos	ent	1	2.571 k	N.m at	5.00	6m from	joint 4 joint 4	
Ximum -	-ve Ben	ding Mom	ment		U-000 X	N.m at	0.00	um from	JOINT 4	
	-4-4			*					* JOB :	CRANE
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				÷.	N A L Y	SIS	RES	U L T S	* JOB : * DATE: *SHEET:	CRANE
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ANALY	SE (C)C	Copyright	t Comp	* A	NAL)	S I S	RES	U L T S	* JOB : * DATE: *SHEET: 1985	15
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ANALY:	SE (C)C	Copyright BINATION	t Comp	* A outer MEMBE	NAL) and Des R 6	S I S	RES	ULTS imited dx (mm)	* JOB : * DATE: *SHEET: 1985 dy (mm) 0.0	Slop (deg
ANALY: SULTS Positi	SE (C)C	Copyright BINATION	t Comp	* A outer MEMBE	NAL) and Des R 6	S I S	RES rvices L Moment (kN.m) -12.571 -9.428	ULTS imited (mm) -21.9	* JOB : * DATE: *SHEET: 1985 dy (mm) 0.00 0.00	15 Slop (deg
ANALY: SULTS Positi from	SE (C)C FOR COM on (m) End 1 3.000 2.250	Copyright BINATION Shear I	t Comp	* A outer MEMBE	N A L) and Des R 6 1 Comp. (kN) -2.724	S I S	RES rvices L .Moment (kN.m) -12.571 -9.428	U L T S imited (mm) -21.9 -17.5	* JOB : * DATE: *SHEET: 1985 dy (mm) 0.00 0.00	15 Slop (deg 90.29 90.37
ANALY: Positi from t. 6	SE (C)C FOR COM on (m) End 1 3.000 2.250 1.500	Copyright BINATION Shear I	t Comp	* A buter MEMBE	N A L) and Des R 6 1 Comp. (kN) -2.724	S I S	RES rvices L Moment (kN.m) -12.571 -9.428	U L T S imited (mm) -21.9 -17.5	* JOB : - * DATE: - *SHEET: - 1985 - dy (mm) 0.0 0.0 0.0	15 Slop (deg 90.29 90.37 90.43

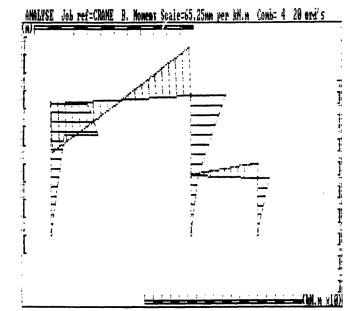
0.000 kN.m at 0.000m from joint 7 -12.571 kN.m at 3.000m from joint 7

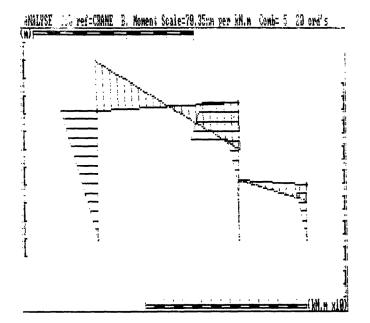
Maximum +ve Bending Moment Maximum -ve Bending Moment











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